GE Healthcare

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List of Effected Pages

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Chapter 1
Obstetric References

Section 1-1
Gestational Age

CAUTION **Gestational Age / FW tables or equations are NOT the same as Fetal Growth / FW Growth tables or equations!**

NOTICE **G.A. (Gestational Age) / FW:**
These are normal ranges for **estimating an unknown gestational age** from the sonographically measured variable.

1-1-1 Abdominal Circumference (AC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open.home.htm
Date: December 2003

AC (cm)	GA		AC (cm)	GA	
	w	± d		w	± d
5.2	11	7	23.0	27	14
6.3	12	7	24.2	28	14
7.4	13	7	25.9	29	14
8.4	14	7	26.2	30	14
9.6	15	7	27.2	31	21
10.6	16	7	28.3	32	21
12.0	17	7	29.4	33	21
13.1	18	10	30.5	34	21
14.0	19	10	31.5	35	21
15.1	20	10	32.5	36	28
16.4	21	10	33.3	37	28
17.6	22	10	34.2	38	28
18.6	23	10	35.6	39	28
20.1	24	10	36.2	40	28
21.2	25	10	36.7	41	28
22.3	26	14			

1-1-2 Abdominal Circumference (AC) CFEF

Reference: Crequat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynecol.Obstet Fertil., Vol. 28 No. 2, 2000, pages 435-445

NOTE: AC and GA Values are taken from Fetal Growth Table; AC (50% values) are used as Input and GA as Output!

AC (mm)	GA (Week)
95.00	15
106.40	16
118.00	17
129.20	18
140.40	19
151.40	20
162.30	21
173.00	22
183.60	23
194.00	24
204.40	25
214.50	26
224.50	27
234.40	28
244.00	29
253.60	30
263.00	31
272.20	32
281.20	33
290.20	34
298.80	35
307.40	36
316.00	37
324.70	38
332.40	39
339.00	40

1-1-3 Abdominal Circumference (AC) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 3. Abdominal measurements", Br.J.Obstet.Gynaecol. Vol. 101 No. 2, 1994, pages 125-131

NOTE: AC and GA Values are taken from Fetal Growth Table; AC (50% values) are used as Input and GA as Output!

AC (cm) Median	GA (week)	AC (cm) Median	GA (week)
5.89	12	23.91	28
7.09	13	24.94	29
8.27	14	25.96	30
9.45	15	26.96	31
10.62	16	27.95	32
11.78	17	28.92	33
12.93	18	29.88	34
14.08	19	30.82	35
15.21	20	31.74	36
16.34	21	32.64	37
17.46	22	33.53	38
18.56	23	34.40	39
19.66	24	35.25	40
20.74	25	36.08	41
21.81	26	36.89	42
22.87	27		

1-1-4 Abdominal Circumference (AC) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight" Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 7{,}61 + 0{,}7645 \times AC + 0{,}00393 \times AC^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 8.0 cm
Max Range: 35.50 cm

Standard Deviation (±): 1SD = 1.2 weeks

AC (cm)	GA (w +d)	AC (cm)	GA (w +d)
8.00	13w6d	22.00	26w2d
8.50	14w1d	22.50	26w6d
9.00	14w4d	23.00	27w2d
9.50	15w0d	23.50	27w5d
10.00	15w4d	24.00	28w1d
10.50	16w1d	24.50	28w5d
11.00	16w4d	25.00	29w1d
11.50	16w6d	25.50	29w5d
12.00	17w2d	26.00	30w1d
12.50	17w6d	26.50	30w4d
13.00	18w1d	27.00	31w1d
13.50	18w4d	27.50	31w4d
14.00	19w1d	28.00	32w1d
14.50	19w4d	28.50	32w4d
15.00	20w0d	29.00	33w1d
15.50	20w3d	29.50	33w4d
16.00	20w6d	30.00	34w1d
16.50	21w2d	30.50	34w4d
17.00	21w5d	31.00	35w1d
17.50	22w1d	31.50	35w4d
18.00	22w4d	32.00	36w1d
18.50	23w1d	32.50	36w4d
19.00	23w4d	33.00	37w1d
19.50	24w0d	33.50	37w4d
20.00	24w4d	34.00	38w1d
20.50	24w6d	34.50	38w5d
21.00	25w4d	35.00	39w1d
21.50	25w6d	35.50	39w5d

1-1-5 Abdominal Circumference (AC) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501

$$GA = 8{,}14 + 0{,}753 \times AC + 0{,}0036 \times AC^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 5.0 cm
Max Range: 38.0 cm

Standard Deviation:

GA (weeks)		± 2SD (weeks)
Low	High	
12	18	1.66
18	24	2.06
24	30	2.18
30	36	2.96
36	42	3.04

AC (mm)	GA (weeks)		AC (mm)	GA (weeks)		AC (mm)	GA (weeks)		AC (mm)	GA (weeks)	
	mean	± 2SD		mean	± 2SD		mean	± 2SD		mean	± 2SD
<50	n/a	——	135	19.0	2.1	225	26.9	2.2	315	35.4	3.0
50	12.0	1.7	140	19.4	2.1	230	27.4	2.2	320	35.9	3.0
55	12.4	1.7	145	19.8	2.1	235	27.8	2.2	321	36.0	3.1
60	12.8	1.7	150	20.2	2.1	240	28.3	2.2	325	36.4	3.1
65	13.2	1.7	155	20.7	2.1	245	28.7	2.2	330	36.9	3.1
70	13.6	1.7	160	21.1	2.1	250	29.2	2.2	335	37.4	3.1
75	14.0	1.7	165	21.5	2.1	255	29.7	2.2	340	37.9	3.1
80	14.4	1.7	170	22.0	2.1	258	30.0	2.2	345	38.4	3.1
85	14.8	1.7	175	22.4	2.1	259	30.1	3.0	350	38.9	3.1
90	15.2	1.7	180	22.9	2.1	260	30.2	3.0	355	39.4	3.1
95	15.6	1.7	185	23.3	2.1	265	30.6	3.0	360	39.9	3.1
100	16.0	1.7	190	23.7	2.1	270	31.1	3.0	365	40.4	3.1
105	16.4	1.7	192	23.9	2.1	275	31.6	3.0	370	40.9	3.1
110	16.9	1.7	193	24.0	2.2	280	32.0	3.0	375	41.4	3.1
115	17.3	1.7	195	24.2	2.2	285	32.5	3.0	380	42.0	3.1
120	17.7	1.7	200	24.6	2.2	290	33.0	3.0	385	42.5	3.1
123	17.9	1.7	205	25.1	2.2	295	33.5	3.0	>385	n/a	——
124	18.0	2.1	210	25.5	2.2	300	34.0	3.0			
125	18.1	2.1	215	26.0	2.2	305	34.5	3.0			
130	18.5	2.1	220	26.4	2.2	310	34.9	3.0			

1-1-6 Abdominal Circumference (AC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer - Verlag, New York, 1986, p.431.

AC (cm)	GA (weeks)
5.30	12
6.30	13
7.50	14
8.50	15
9.70	16
10.70	17
11.60	18
12.60	19
13.50	20
14.50	21
15.50	22
16.50	23
17.30	24
18.30	25
19.10	26
20.20	27
21.10	28
22.20	29
23.00	30
24.00	31
24.90	32
25.80	33
26.80	34
27.70	35
28.70	36
29.60	37
30.60	38
31.50	39
32.00	40

1-1-7 Abdominal Circumference (AC) HOBBINS

Reference: Document by E-Mail of Hobbins

$$GA = 12{,}099 - (0{,}0011628 \times AC) + (0{,}00045839 \times AC^2) - (0{,}00000069291 \times AC^3)$$

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42 week

1-1-8 Abdominal Circumference (AC) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F. "Normal Growth of the Abdominal Perimeter" American Journal of Perinatology; Volume 1, Number 2; January 1984; pages 129-135

NOTE: AC and GA Values are taken from the Fetal Growth Table and converted to a Fetal Age Table (Growth table see: Section 1-2-8 on page 1-144)

AC (cm)	GA (w+d)	AC (cm)	GA (w+d)	AC (cm)	GA (w+d)
5.00	11w2d	14.00	19w6d	23.00	28w3d
5.50	11w5d	14.50	20w2d	23.50	29w0d
6.00	12w1d	15.00	20w6d	24.00	29w3d
6.50	12w5d	15.50	21w2d	24.50	30w0d
7.00	13w1d	16.00	21w5d	25.00	30w4d
7.50	13w4d	16.50	22w2d	25.50	31w1d
8.00	14w1d	17.00	22w5d	26.00	31w5d
8.50	14w4d	17.50	23w1d	26.50	32w2d
9.00	15w0d	18.00	23w5d	27.00	32w6d
9.50	15w4d	18.50	24w1d	27.50	33w3d
10.00	16w0d	19.00	24w4d	28.00	34w1d
10.50	16w3d	19.50	25w1d	28.50	34w6d
11.00	17w0d	20.00	25w4d	29.00	35w4d
11.50	17w3d	20.50	26w0d	29.50	36w2d
12.00	17w6d	21.00	26w4d	30.00	37w0d
12.50	18w3d	21.50	27w0d	30.50	37w6d
13.00	18w6d	22.00	27w3d	31.00	38w6d
13.50	19w2d	22.50	28w0d	31.50	39w6d

1-1-9 Abdominal Circumference (AC) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J.Med Ultrasonics Vol. 28 No.5 (2001)

AC (cm)	GA (w+d / d)		AC (cm)	GA (w+d / d)	
	Mean	± 1SD		Mean	± 1SD
10.00	15w3d	8	21.50	27w0d	12
10.50	16w0d	8	22.00	27w3d	12
11.00	16w4d	8	22.50	28w0d	12
11.50	17w0d	8	23.00	28w4d	12
12.00	17w4d	9	23.50	29w0d	12
12.50	18w0d	9	24.00	29w4d	13
13.00	18w4d	9	24.50	30w1d	13
13.50	19w0d	9	25.00	30w5d	13
14.00	19w4d	9	25.50	31w2d	13
14.50	20w0d	9	26.00	31w6d	13
15.00	20w3d	10	26.50	32w3d	13
15.50	21w0d	10	27.00	33w1d	13
16.00	21w3d	10	27.50	33w5d	14
16.50	22w0d	10	28.00	34w2d	14
17.00	22w3d	10	28.50	35w0d	14
17.50	22w6d	10	29.00	35w4d	14
18.00	23w3d	11	29.50	36w2d	14
18.50	23w6d	11	30.00	37w0d	14
19.00	24w3d	11	30.50	37w5d	14
19.50	24w6d	11	31.00	38w2d	15
20.00	25w3d	11	31.50	39w0d	15
20.50	25w6d	11	32.00	39w6d	15
21.00	26w3d	12	32.50	40w4d	15

1-1-10 Abdominal Circumference (AC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d	AC (cm)	GA (w+d
5.7	12w0d	9.7	15w4d	13.7	19w0d	17.7	22w5d	21.7	26w4d	25.7	30w4d	29.7	34w6d	33.7	39w4d
5.8	12w1d	9.8	15w4d	13.8	19w1d	17.8	22w6d	21.8	26w4d	25.8	30w5d	29.8	35w0d	33.8	39w5d
5.9	12w1d	9.9	15w5d	13.9	19w2d	17.9	22w6d	21.9	26w5d	25.9	30w5d	29.9	35w1d	33.9	39w6d
6.0	12w2d	10.0	15w5d	14.0	19w2d	18.0	23w0d	22.0	26w6d	26.0	30w6d	30.0	35w2d	34.0	40w0d
6.1	12w3d	10.1	15w6d	14.1	19w3d	18.1	23w1d	22.1	27w0d	26.1	31w0d	30.1	35w2d	34.1	40w1d
6.2	12w3d	10.2	16w0d	14.2	19w4d	18.2	23w1d	22.2	27w0d	26.2	31w1d	30.2	35w3d	34.2	40w2d
6.3	12w4d	10.3	16w0d	14.3	19w4d	18.3	23w2d	22.3	27w1d	26.3	31w1d	30.3	35w4d	34.3	40w3d
6.4	12w4d	10.4	16w1d	14.4	19w5d	18.4	23w3d	22.4	27w2d	26.4	31w2d	30.4	35w5d	34.4	40w4d
6.5	12w5d	10.5	16w1d	14.5	19w5d	18.5	23w3d	22.5	27w2d	26.5	31w3d	30.5	35w6d	34.5	40w4d
6.6	12w6d	10.6	16w2d	14.6	19w6d	18.6	23w4d	22.6	27w3d	26.6	31w4d	30.6	35w6d	34.6	40w5d
6.7	12w6d	10.7	16w3d	14.7	20w0d	18.7	23w5d	22.7	27w4d	26.7	31w4d	30.7	36w0d	34.7	40w6d
6.8	13w0d	10.8	16w3d	14.8	20w0d	18.8	23w5d	22.8	27w4d	26.8	31w5d	30.8	36w1d	34.8	41w0d
6.9	13w0d	10.9	16w4d	14.9	20w1d	18.9	23w6d	22.9	27w5d	26.9	31w6d	30.9	36w2d	34.9	41w1d
7.0	13w1d	11.0	16w5d	15.0	20w2d	19.0	24w0d	23.0	27w6d	27.0	32w0d	31.0	36w3d	35.0	41w2d
7.1	13w2d	11.1	16w5d	15.1	20w2d	19.1	24w0d	23.1	27w6d	27.1	32w0d	31.1	36w3d	35.1	41w3d
7.2	13w2d	11.2	16w6d	15.2	20w3d	19.2	24w1d	23.2	28w0d	27.2	32w1d	31.2	36w4d	35.2	41w4d
7.3	13w3d	11.3	16w6d	15.3	20w4d	19.3	24w2d	23.3	28w1d	27.3	32w2d	31.3	36w5d	35.3	41w5d
7.4	13w3d	11.4	17w0d	15.4	20w4d	19.4	24w2d	23.4	28w2d	27.4	32w3d	31.4	36w6d	35.4	41w6d
7.5	13w4d	11.5	17w1d	15.5	20w5d	19.5	24w3d	23.5	28w2d	27.5	32w3d	31.5	37w0d	35.5	42w0d
7.6	13w5d	11.6	17w1d	15.6	20w5d	19.6	24w4d	23.6	28w3d	27.6	32w4d	31.6	37w0d		
7.7	13w5d	11.7	17w2d	15.7	20w6d	19.7	24w4d	23.7	28w4d	27.7	32w5d	31.7	37w1d		
7.8	13w6d	11.8	17w2d	15.8	21w0d	19.8	24w5d	23.8	28w4d	27.8	32w6d	31.8	37w2d		
7.9	14w0d	11.9	17w3d	15.9	21w0d	19.9	24w6d	23.9	28w5d	27.9	32w6d	31.9	37w3d		
8.0	14w0d	12.0	17w4d	16.0	21w1d	20.0	24w6d	24.0	28w6d	28.0	33w0d	32.0	37w4d		
8.1	14w1d	12.1	17w4d	16.1	21w2d	20.1	25w0d	24.1	29w0d	28.1	33w1d	32.1	37w5d		
8.2	14w1d	12.2	17w5d	16.2	21w2d	20.2	25w1d	24.2	29w0d	28.2	33w2d	32.2	37w5d		
8.3	14w2d	12.3	17w6d	16.3	21w3d	20.3	25w1d	24.3	29w1d	28.3	33w2d	32.3	37w6d		
8.4	14w3d	12.4	17w6d	16.4	21w4d	20.4	25w2d	24.4	29w2d	28.4	33w3d	32.4	38w0d		
8.5	14w3d	12.5	18w0d	16.5	21w4d	20.5	25w3d	24.5	29w2d	28.5	33w4d	32.5	38w1d		
8.6	14w4d	12.6	18w0d	16.6	21w5d	20.6	25w3d	24.6	29w3d	28.6	33w5d	32.6	38w2d		
8.7	14w4d	12.7	18w1d	16.7	21w6d	20.7	25w4d	24.7	29w4d	28.7	33w5d	32.7	38w3d		
8.8	14w5d	12.8	18w2d	16.8	21w6d	20.8	25w5d	24.8	29w4d	28.8	33w6d	32.8	38w4d		
8.9	14w6d	12.9	18w2d	16.9	22w0d	20.9	25w5d	24.9	29w5d	28.9	34w0d	32.9	38w4d		
9.0	14w6d	13.0	18w3d	17.0	22w0d	21.0	25w6d	25.0	29w6d	29.0	34w1d	33.0	38w5d		
9.1	15w0d	13.1	18w4d	17.1	22w1d	21.1	26w0d	25.1	30w0d	29.1	34w2d	33.1	38w6d		
9.2	15w0d	13.2	18w4d	17.2	22w2d	21.2	26w0d	25.2	30w0d	29.2	34w2d	33.2	39w0d		
9.3	15w1d	13.3	18w5d	17.3	22w2d	21.3	26w1d	25.3	30w1d	29.3	34w3d	33.3	39w1d		
9.4	15w2d	13.4	18w5d	17.4	22w3d	21.4	26w2d	25.4	30w2d	29.4	34w4d	33.4	39w2d		
9.5	15w2d	13.5	18w6d	17.5	22w4d	21.5	26w2d	25.5	30w3d	29.5	34w5d	33.5	39w3d		
9.6	15w3d	13.6	19w0d	17.6	22w4d	21.6	26w3d	25.6	30w3d	29.6	34w5d	33.6	39w3d		

1-1-11 Abdominal Circumference (AC) MERZ

Reference: E. Merz. W. Goldhofer. E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Text book and Atlas. 1991 Georg Thieme Verlag, pp.326

AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
5.60	10w6d	12w1d	13w2d	15.40	19w6d	21w3d	23w0d	25.20	28w6d	30w6d	32w5d
5.80	11w1d	12w2d	13w4d	15.60	20w1d	21w4d	23w1d	25.40	29w0d	30w6d	32w6d
6.00	11w2d	12w4d	13w5d	15.80	20w1d	21w6d	23w3d	25.60	29w1d	31w1d	33w1d
6.20	11w4d	12w5d	13w6d	16.00	20w3d	22w0d	23w4d	25.80	29w3d	31w2d	33w2d
6.40	11w5d	12w6d	14w1d	16.20	20w4d	22w1d	23w6d	26.00	29w4d	31w4d	33w4d
6.60	11w6d	13w1d	14w2d	16.40	20w6d	22w3d	24w0d	26.20	29w5d	31w5d	33w5d
6.80	12w0d	13w2d	14w4d	16.60	21w0d	22w4d	24w1d	26.40	29w6d	31w6d	33w6d
7.00	12w1d	13w4d	14w5d	16.80	21w1d	22w6d	24w3d	26.60	30w1d	32w1d	34w1d
7.20	12w3d	13w4d	14w6d	17.00	21w2d	23w0d	24w4d	26.80	30w2d	32w2d	34w2d
7.40	12w4d	13w6d	15w1d	17.20	21w4d	23w1d	24w6d	27.00	30w4d	32w4d	34w4d
7.60	12w6d	14w0d	15w2d	17.40	21w5d	23w2d	25w0d	27.20	30w4d	32w5d	34w5d
7.80	12w6d	14w1d	15w4d	17.60	21w6d	23w4d	25w1d	27.40	30w6d	32w6d	34w6d
8.00	13w1d	14w3d	15w5d	17.80	22w1d	23w5d	25w3d	27.60	31w0d	33w0d	35w1d
8.20	13w2d	14w4d	15w6d	18.00	22w1d	23w6d	25w4d	27.80	31w1d	33w1d	35w2d
8.40	13w4d	14w6d	16w1d	18.20	22w3d	24w1d	25w6d	28.00	31w3d	33w3d	35w4d
8.60	13w5d	15w0d	16w2d	18.40	22w4d	24w2d	26w0d	28.20	31w4d	33w4d	35w5d
8.80	13w6d	15w1d	16w4d	18.60	22w6d	24w4d	26w1d	28.40	31w5d	33w6d	35w6d
9.00	14w0d	15w3d	16w5d	18.80	23w0d	24w5d	26w3d	28.60	31w6d	34w0d	36w1d
9.20	14w1d	15w4d	16w6d	19.00	23w1d	24w6d	26w4d	28.80	32w1d	34w1d	36w2d
9.40	14w3d	15w5d	17w1d	19.20	23w2d	25w0d	26w6d	29.00	32w2d	34w3d	36w4d
9.60	14w4d	15w6d	17w2d	19.40	23w4d	25w1d	27w0d	29.20	32w4d	34w4d	36w5d
9.80	14w6d	16w1d	17w4d	19.60	23w5d	25w3d	27w1d	29.40	32w4d	34w5d	36w6d
10.00	14w6d	16w2d	17w5d	19.80	23w6d	25w4d	27w3d	29.60	32w6d	34w6d	37w1d
10.20	15w1d	16w4d	17w6d	20.00	24w1d	25w6d	27w4d	29.80	33w0d	35w1d	37w1d
10.40	15w2d	16w5d	18w1d	20.20	24w2d	26w0d	27w6d	30.00	33w1d	35w2d	37w3d
10.60	15w4d	16w6d	18w2d	20.40	24w3d	26w1d	27w6d	30.20	33w3d	35w4d	37w4d
10.80	15w5d	17w1d	18w3d	20.60	24w4d	26w3d	28w1d	30.40	33w4d	35w5d	37w6d
11.00	15w6d	17w2d	18w4d	20.80	24w6d	26w4d	28w2d	30.60	33w5d	35w6d	38w0d
11.20	16w0d	17w3d	18w6d	21.00	25w0d	26w6d	28w4d	30.80	33w6d	36w1d	38w1d
11.40	16w1d	17w4d	19w0d	21.20	25w1d	27w0d	28w5d	31.00	34w1d	36w2d	38w3d
11.60	16w3d	17w6d	19w1d	21.40	25w2d	27w1d	28w6d	31.20	34w2d	36w4d	38w4d
11.80	16w4d	18w0d	19w3d	21.60	25w4d	27w2d	29w1d	31.40	34w4d	36w4d	38w6d
12.00	16w6d	18w1d	19w4d	21.80	25w5d	27w4d	29w2d	31.60	34w4d	36w6d	39w0d
12.20	17w0d	18w3d	19w6d	22.00	25w6d	27w5d	29w4d	31.80	34w6d	37w0d	39w1d
12.40	17w1d	18w4d	20w0d	22.20	26w1d	27w6d	29w5d	32.00	35w0d	37w1d	39w3d
12.60	17w2d	18w6d	20w1d	22.40	26w2d	28w1d	29w6d	32.20	35w1d	37w3d	39w4d
12.80	17w4d	19w0d	20w3d	22.60	26w3d	28w2d	30w1d	32.40	35w3d	37w4d	39w6d
13.00	17w5d	19w1d	20w4d	22.80	26w4d	28w4d	30w2d	32.60	35w4d	37w6d	40w0d
13.20	17w6d	19w2d	20w6d	23.00	26w6d	28w5d	30w4d	32.80	35w5d	38w0d	40w1d
13.40	18w0d	19w4d	21w0d	23.20	27w0d	28w6d	30w5d	33.00	35w6d	38w1d	40w3d
13.60	18w1d	19w5d	21w1d	23.40	27w1d	29w0d	30w6d	33.20	36w1d	38w3d	40w4d
13.80	18w3d	19w6d	21w3d	23.60	27w3d	29w1d	31w1d	33.40	36w2d	38w4d	40w6d
14.00	18w4d	20w1d	21w4d	23.80	27w4d	29w3d	31w2d	33.60	36w4d	38w5d	41w0d

AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)			AC (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
14.20	18w6d	20w2d	21w6d	24.00	27w5d	29w4d	31w4d	33.80	36w5d	38w6d	41w1d
14.40	19w0d	20w4d	22w0d	24.20	27w6d	29w6d	31w5d	34.00	36w6d	39w1d	41w3d
14.60	19w1d	20w5d	22w1d	24.40	28w1d	30w0d	31w6d	34.20	37w0d	39w2d	41w4d
14.80	19w2d	20w6d	22w3d	24.60	28w2d	30w1d	32w1d	34.40	37w1d	39w4d	41w6d
15.00	19w4d	21w1d	22w4d	24.80	28w3d	30w3d	32w2d	34.60	37w3d	39w5d	42w0d
15.20	19w5d	21w1d	22w6d	25.00	28w4d	30w4d	32w4d	34.80	37w4d	39w6d	42w1d

1-1-12 Abdominal Circumference (AC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: AC and GA Values are taken from Fetal Growth Table; AC (50% values) are used as Input and GA as Output!

AC (cm)	GA (Week)	AC (cm)	GA (Week)
Median		Median	
9.00	14	23.10	27
9.90	15	24.30	28
10.80	16	25.40	29
11.80	17	26.60	30
12.80	18	27.70	31
13.90	19	28.70	32
14.90	20	29.70	33
16.10	21	30.70	34
17.20	22	31.60	35
18.30	23	32.40	36
19.50	24	33.20	37
20.70	25	33.90	38
21.90	26	34.50	39

1-1-13 Abdominal Circumference (AC) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

AC (cm)	GA (w+d/d)		AC (cm)	GA (w+d/d)	
	mean	± dec		mean	± dec
10.00	15w3d	8d	22.00	27w3d	12d
10.50	16w0d	8d	22.50	28w0d	12d
11.00	16w4d	8d	23.00	28w4d	12d
11.50	17w0d	8d	23.50	29w0d	12d
12.00	17w4d	9d	24.00	29w4d	13d
12.50	18w0d	9d	24.50	30w1d	13d
13.00	18w4d	9d	25.00	30w5d	13d
13.50	19w0d	9d	25.50	31w2d	13d
14.00	19w4d	9d	26.00	31w6d	13d
14.50	20w0d	9d	26.50	32w3d	13d
15.00	20w3d	10d	27.00	33w1d	13d
15.50	21w0d	10d	27.50	33w5d	14d
16.00	21w3d	10d	28.00	34w2d	14d
16.50	22w0d	10d	28.50	35w0d	14d
17.00	22w3d	10d	29.00	35w4d	14d
17.50	22w6d	10d	29.50	36w2d	14d
18.00	23w3d	11d	30.00	37w0d	14d
18.50	23w6d	11d	30.50	37w5d	14d
19.00	24w3d	11d	31.00	38w2d	15d
19.50	24w6d	11d	31.50	39w0d	15d
20.00	25w3d	11d	32.00	39w6d	15d
20.50	25w6d	11d	32.50	40w4d	15d
21.00	26w3d	12d	33.00	41w2d	15d
21.50	27w0d	12d			

1-1-14 Abdominal Circumference (AC) SIRIRAJ

Reference: Sunsaneevithayakul P, Boriboonhirunsarn D, Siwadune T, Titapant V, Vantanasiri C. Charts of Thai fetal biometries: 4. Abdominal circumference. J Med Assoc Thai 2000; 83: 307-314

$$GA = 8,25593 + 0,064919 \cdot AC + 0,000175 \cdot AC^2 - 3 \times 10^{-7} \bullet AC^3$$

$$SD = -0,217076 \bullet AC + 0,005633$$

Input Unit: mm
Output Unit: w +d
min Range: 50 mm
max Range: 385 mm

AC (mm)	GA mean (w+d)	GA ±1SD (d)	AC (mm)	GA mean (w+d)	GA ±1SD (d)	AC (mm)	GA mean (w+d)	GA ±1SD (d)
50	11w6d	0d	180	23w6d	5d	300	35w3d	10d
65	13w1d	1d	185	24w2d	5d	305	35w6d	10d
70	13w4d	1d	190	24w6d	5d	310	36w2d	10d
75	13w7d	1d	195	25w2d	6d	315	36w5d	10d
80	14w3d	1d	200	25w6d	6d	320	37w1d	11d
85	14w6d	1d	205	26w2d	6d	325	37w4d	11d
90	15w2d	2d	210	26w6d	6d	330	37w7d	11d
95	15w5d	2d	215	27w2d	6d	335	38w3d	11d
100	16w1d	2d	220	27w6d	7d	340	38w5d	11d
105	16w5d	2d	225	28w2d	7d	345	39w1d	12d
110	17w1d	2d	230	28w6d	7d	350	39w4d	12d
115	17w4d	3d	235	29w2d	7d	355	39w7d	12d
120	18w0d	3d	240	29w5d	7d	360	40w2d	12d
125	18w4d	3d	245	30w2d	8d	365	40w5d	12d
130	18w7d	3d	250	30w5d	8d	370	41w0d	13d
135	19w3d	3d	255	31w2d	8d	375	41w3d	13d
140	19w7d	4d	260	31w5d	8d	380	41w5d	13d
145	20w3d	4d	265	32w1d	8d	385	42w0d	13d
150	20w6d	4d	270	32w4d	9d			
155	21w3d	4d	275	33w1d	9d			
160	21w6d	4d	280	33w4d	9d			
165	22w3d	4d	285	34w0d	9d			
170	22w6d	5d	290	34w3d	9d			
175	23w3d	5d	295	34w7d	10d			

1-1-15 Abdominal Circumference (AC) TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

AC (cm)	GA (w+d/d)		AC (cm)	GA (w+d/d)	
	mean	± dec		mean	± dec
10.00	15w3d	8d	22.00	27w3d	12d
10.50	16w0d	8d	22.50	28w0d	12d
11.00	16w4d	8d	23.00	28w4d	12d
11.50	17w0d	8d	23.50	29w0d	12d
12.00	17w4d	9d	24.00	29w4d	13d
12.50	18w0d	9d	24.50	30w1d	13d
13.00	18w4d	9d	25.00	30w5d	13d
13.50	19w0d	9d	25.50	31w2d	13d
14.00	19w4d	9d	26.00	31w6d	13d
14.50	20w0d	9d	26.50	32w3d	13d
15.00	20w3d	10d	27.00	33w1d	13d
15.50	21w0d	10d	27.50	33w5d	14d
16.00	21w3d	10d	28.00	34w2d	14d
16.50	22w0d	10d	28.50	35w0d	14d
17.00	22w3d	10d	29.00	35w4d	14d
17.50	22w6d	10d	29.50	36w2d	14d
18.00	23w3d	11d	30.00	36w0d	14d
18.50	23w6d	11d	30.50	37w5d	14d
19.00	24w3d	11d	31.00	38w2d	15d
19.50	24w6d	11d	31.50	39w0d	15d
20.00	25w3d	11d	32.00	39w6d	15d
20.50	25w6d	11d	32.50	40w4d	15d
21.00	26w3d	12d	33.00	41w2d	15d
21.50	27w0d	12d			

1-1-16 Abdominal Diameter (AD) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: AD and GA Values are taken from Fetal Growth Table; AD values are used as Input and GA Output!

AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)
34.0	111	53.0	149	72.0	187	90.8	225	106.8	263
34.5	112	53.5	150	72.5	188	91.2	226	107.2	264
35.0	113	54.0	151	73.0	189	91.6	227	107.6	265
35.5	114	54.5	152	73.5	190	92.0	228	108.0	266
36.0	115	55.0	153	74.0	191	92.5	229	108.4	267
36.5	116	55.5	154	74.5	192	93.0	230	108.8	268
37.0	117	56.0	155	75.0	193	93.5	231	109.2	269
37.5	118	56.5	156	75.5	194	94.0	232	109.6	270
38.0	119	57.0	157	76.0	195	94.4	233	110.0	271
38.5	120	57.5	158	76.5	196	94.8	234	110.3	272
39.0	121	58.0	159	77.0	197	95.2	235	110.7	273
39.5	122	58.5	160	77.5	198	95.6	236	111.0	274
40.0	123	59.0	161	78.0	199	96.0	237	111.3	275
40.5	124	59.5	162	78.5	200	96.5	238	111.7	276
41.0	125	60.0	163	79.0	201	97.0	239	112.0	277
41.5	126	60.5	164	79.5	202	97.5	240	112.3	278
42.0	127	61.0	165	80.0	203	98.0	241	112.7	279
42.5	128	61.5	166	80.5	204	98.4	242	113.0	280
43.0	129	62.0	167	81.0	205	98.8	243	113.3	281
43.5	130	62.5	168	81.5	206	99.2	244	113.5	282
44.0	131	63.0	169	82.0	207	99.6	245	113.8	283
44.5	132	63.5	170	82.5	208	100.0	246	114.0	284
45.0	133	64.0	171	83.0	209	100.5	247	114.3	285
45.5	134	64.5	172	83.5	210	101.0	248	114.5	286
46.0	135	65.0	173	84.0	211	101.4	249	114.8	287
46.5	136	65.5	174	84.5	212	101.8	250	115.0	288
47.0	137	66.0	175	85.0	213	102.2	251	115.3	289
47.5	138	66.5	176	85.3	214	102.6	252	115.5	290
48.0	139	67.0	177	86.0	215	103.0	253	115.8	291
48.5	140	67.5	178	86.5	216	103.4	254	116.0	292
49.0	141	68.0	179	87.0	217	103.8	255	116.2	293
49.5	142	68.5	180	87.5	218	104.2	256	116.4	294
50.0	143	69.0	181	88.0	219	104.6	257	116.6	295
50.5	144	69.5	182	88.5	220	105.0	258	116.8	296
51.0	145	70.0	183	89.0	221	105.3	259	117.0	297
51.5	146	70.5	184	89.5	222	105.7	260	117.2	298
52.0	147	71.0	185	90.0	223	106.0	261	117.4	299
52.2	148	71.5	186	90.4	224	106.4	262	117.6	300

1-1-17 Anterior Posterior Abdominal Diameter (APAD) MERZ

Reference: Merz E., Wellek S. Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones Ultraschall in Med. 17 (1996) 153-162

NOTE: APAD and GA Values are taken from Fetal Growth Table; APAD (50% values) are used as Input and GA as Output! (Growth table see: Section 1-2-21 on page 1-158)

NOTE: Values are copied from growth table.

APAD (cm)	GA (weeks)	APAD (cm)	GA (weeks)
50%		**50%**	
1.90	12.5	7.00	27.5
2.10	13.0	7.20	28.0
2.30	13.5	7.30	28.5
2.40	14.0	7.50	29.0
2.60	14.5	7.60	29.5
2.80	15.0	7.80	30.0
2.90	15.5	7.90	30.5
3.10	16.0	8.10	31.0
3.30	16.5	8.20	31.5
3.50	17.0	8.40	32.0
3.60	17.5	8.50	32.5
3.80	18.0	8.70	33.0
4.00	18.5	8.80	33.5
4.20	19.0	9.00	34.0
4.30	19.5	9.10	34.5
4.50	20.0	9.30	35.0
4.70	20.5	9.40	35.5
4.80	21.0	9.60	36.0
5.00	21.5	9.70	36.5
5.20	22.0	9.80	37.0
5.40	22.5	10.00	37.5
5.50	23.0	10.10	38.0
5.70	23.5	10.20	38.5
5.90	24.0	10.30	39.0
6.00	24.5	10.50	39.5
6.20	25.0	10.60	40.0
6.30	25.5	10.70	40.5
6.50	26.0	10.80	41.0
6.70	26.5	10.90	41.5
6.80	27.0		

1-1-18 Anterior Posterior Trunk Diameter (APTD) HANSMANN

Reference: Hansmann M. "Ultraschallbiometrie im II. und III. Trimester der Schwangerschaft" Gynäkologe 9 (1976) 144

APTD (cm)	GA (weeks)
2.25	14
2.58	15
2.85	16
3.11	17
3.46	18
3.75	19
4.00	20
4.34	21
4.65	22
4.90	23
5.15	24
5.48	25
5.80	26
6.15	27
6.39	28
6.70	29
7.01	30
7.25	31
7.62	32
7.93	33
8.15	34
8.40	35
8.75	36
9.02	37
9.30	38
9.53	39
9.68	40
9.84	41
9.91	42

1-1-19 APTD x TTD SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

$$AxT = APTD \times TTD$$

AxT (cm^2)	GA (w+d/d)		AxT (cm^2)	GA (w+d/d)	
	mean	± dec		mean	± dec
10	16w1d	8d	52	29w3d	13d
12	17w0d	8d	54	30w0d	13d
14	17w6d	8d	56	30w3d	13d
16	18w4d	8d	58	31w0d	14d
18	19w3d	8d	60	31w3d	14d
20	20w1d	8d	62	31w6d	14d
22	20w6d	9d	64	32w3d	15d
24	21w4d	9d	66	32w6d	15d
26	22w2d	9d	68	33w3d	15d
28	22w6d	9d	70	33w6d	16d
30	23w4d	9d	72	34w2d	16d
32	24w1d	10d	74	34w6d	17d
34	24w5d	10d	76	35w3d	17d
36	25w3d	10d	78	35w6d	17d
38	25w6d	10d	80	36w3d	18d
40	26w3d	11d	82	37w0d	18d
42	27w0d	11d	84	37w4d	18d
44	27w3d	11d	86	38w1d	18d
46	28w0d	12d	88	38w5d	19d
48	28w4d	12d	90	39w2d	19d
50	29w0d	12d			

1-1-20 APTD x TTD TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

$$AxT = APTD \times TTD$$

AxT (cm^2)	GA (w+d/d)		AxT (cm^2)	GA (w+d/d)	
	mean	± dec		mean	± dec
10	16w1d	8d	52	29w3d	13d
12	17w0d	8d	54	30w0d	13d
14	17w6d	8d	56	30w3d	13d
16	18w4d	8d	58	31w0d	14d
18	19w3d	8d	60	31w3d	14d
20	20w1d	8d	62	31w6d	14d
22	20w6d	9d	64	32w3d	15d
24	21w4d	9d	66	32w6d	15d
26	22w2d	9d	68	33w3d	15d
28	22w6d	9d	70	33w6d	16d
30	23w4d	9d	72	34w2d	16d
32	24w1d	10d	74	34w6d	17d
34	24w5d	10d	76	35w3d	17d
36	25w2d	10d	78	35w6d	17d
38	25w6d	10d	80	36w3d	18d
40	26w3d	11d	82	37w0d	18d
42	27w0d	11d	84	37w4d	18d
44	27w3d	11d	86	38w1d	18d
46	28w0d	12d	88	38w5d	19d
48	28w4d	12d	90	39w2d	19d
50	29w0d	12d			

1-1-21 Binocular Distance (BOD) JEANTY

Reference: Jeanty P., Cantraine F., Cousaert E., Romero R., Hobbins J.C. "The binocular distance: a new way to estimate fetal age." Journal of Ultrasound in Medicine; 1984; Jun; 3(6): 241-243

BOD (cm)	GA (weeks + days)			BOD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
1.50	7w1d	10w3d	13w6d	4.10	22w4d	25w6d	29w1d
1.60	7w5d	11w0d	14w3d	4.20	23w1d	26w4d	29w6d
1.70	8w2d	11w4d	15w0d	4.30	23w6d	27w1d	30w3d
1.80	8w6d	12w1d	15w4d	4.40	24w3d	27w5d	31w0d
1.90	9w4d	12w6d	16w1d	4.50	25w0d	28w2d	31w4d
2.00	10w1d	13w3d	16w5d	4.60	25w4d	28w6d	32w1d
2.10	10w5d	14w0d	17w2d	4.70	26w1d	29w4d	32w6d
2.20	11w2d	14w4d	17w6d	4.80	26w6d	30w1d	33w3d
2.30	11w6d	15w1d	18w4d	4.90	27w2d	30w5d	34w0d
2.40	12w4d	15w6d	19w1d	5.00	27w6d	31w2d	34w4d
2.50	13w1d	16w3d	19w5d	5.10	28w4d	31w6d	35w1d
2.60	13w5d	17w0d	20w2d	5.20	29w1d	32w4d	35w6d
2.70	14w2d	17w4d	20w6d	5.30	29w5d	33w0d	36w3d
2.80	14w6d	18w1d	21w4d	5.40	30w2d	33w4d	37w0d
2.90	15w4d	18w6d	22w1d	5.50	30w6d	34w1d	37w4d
3.00	16w1d	19w3d	22w5d	5.60	31w4d	34w6d	38w1d
3.10	16w4d	20w0d	23w2d	5.70	32w1d	35w3d	38w5d
3.20	17w1d	20w4d	23w6d	5.80	32w5d	36w0d	39w2d
3.30	17w6d	21w1d	24w4d	5.90	33w2d	36w4d	39w6d
3.40	18w3d	21w5d	25w1d	6.00	33w6d	37w1d	40w4d
3.50	19w0d	22w2d	25w5d	6.10	34w4d	37w6d	41w1d
3.60	19w4d	22w6d	26w2d	6.20	35w1d	38w3d	41w5d
3.70	20w1d	23w4d	26w6d	6.30	35w5d	39w0d	42w2d
3.80	20w6d	24w1d	27w3d	6.40	36w2d	39w4d	42w6d
3.90	21w3d	24w5d	28w0d	6.50	36w6d	40w1d	43w4d
4.00	22w0d	25w2d	28w4d				

1-1-22 Biparietal Diameter (BPD) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

BPD (cm)	GA		BPD (cm)	GA	
	w	± d		w	± d
1.6	11	4	6.8	27	12
2.0	12	7	7.2	28	12
2.4	13	7	7.5	29	12
2.8	14	7	7.6	30	14
3.1	15	7	8.0	31	16
3.6	16	7	8.1	32	16
3.9	17	10	8.4	33	21
4.2	18	10	8.6	34	21
4.5	19	10	8.8	35	21
4.7	20	10	9.0	36	21
4.9	21	10	9.2	37	24
5.2	22	10	9.3	38	24
5.7	23	10	9.5	39	28
6.0	24	10	9.6	40	28
6.4	25	10	9.8	41	28
6.7	26	12			

1-1-23 Biparietal Diameter (BPD) ASUM OLD

Reference: *ASUM STANDARD BPD CHART*
Reaffirmed MAY 1996
STANDARD GESTATION AGE ASSESSMENT USING BPD
Prepared by D. Robinson, L. de Crespigny, A. Speirs and W. Garrett
These figures are based on an Australian population. It is recommended that a multiparameter assessment of gestational age be used.
The wide normal range of BPD in late pregnancy must be appreciated. It is not expected that BPD be used to assess gestation late in pregnancy. The values from 33 weeks are intended to predict the growth in fetal head size from a known gestation.
Modified from de Crespigny L and Speirs A.L. A new look at Biparietal Diameter. Aust NZJ Obstet Gynaecol 1989, 29:26-29.

BPD	GA(weeks)		BPD	GA(weeks)		BPD	GA(weeks)	
(mm)	w d	±2 SD	(mm)	w d	±2 SD	(mm)	w d	±2 SD
20	12 0	4d	43	18 4	9d	66	26 1	14d
21	12 2	4d	44	18 6	9d	67	26 4	15d
22	12 4	4d	45	19 1	9d	68	26 6	15d
23	12 6	4d	46	19 3	10d	69	27 2	15d
24	13 1	5d	47	19 6	10d	70	27 4	15d
25	13 2	5d	48	20 1	10d	71	28 0	16d
26	13 4	5d	49	20 3	10d	72	28 3	16d
27	13 6	5d	50	20 5	11d	73	28 5	16d
28	14 1	5d	51	21 0	11d	74	29 1	16d
29	14 3	6d	52	21 2	11d	75	29 3	17d
30	14 5	6d	53	21 5	11d	76	29 6	17d
31	15 0	6d	54	22 0	12d	77	30 2	17d
32	15 2	6d	55	22 3	12d	78	30 4	17d
33	15 4	7d	56	22 5	12d	79	31 0	17d
34	15 6	7d	57	23 0	12d	80	31 3	18d
35	16 1	7d	58	23 3	13d	81	31 5	18d
36	16 3	7d	59	23 5	13d	82	32 1	18d
37	16 5	8d	60	24 1	13d	83	32 4	18d
38	17 0	8d	61	24 3	13d	84	33 0	19d
39	17 2	8d	62	24 5	13d			
40	17 4	8d	63	25 1	14d			
41	18 0	9d	64	25 3	14d			
42	18 2	9d	65	25 6	14d			

1-1-24 Biparietal Diameter (BPD) CAMPBELL

Reference: *Campbell S., Warsof S.L., Little D., Cooper D.J.*
"Routine Ultrasound Screening for the Prediction of Gestational Age"
Obstetrics & Gynecology; Vol. 65; No. 5; May 1985; pages 613-620

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD values are used as Input and GA as Output!

BPD (cm)	GA (weeks)	BPD (cm)	GA (weeks)
2.12	12	7.09	27
2.17	13	7.58	28
2.78	14	7.87	29
3.14	15	8.03	30
3.53	16	8.22	31
3.87	17	8.57	32
4.15	18	8.67	33
4.60	19	8.94	34
4.82	20	9.16	35
5.12	21	9.14	36
5.42	22	9.35	37
5.82	23	9.35	38
6.16	24	9.62	39
6.42	25	9.59	40
6.59	26		

1-1-25 Biparietal Diameter (BPD) CFEF

Reference: Crequat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynecol Obstet Fertil, Vol. 28 No. 2, 2000, pages 435-445

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD values are used as Input and GA as Output!

BPD (mm)	GA (Week)	BPD (mm)	GA (Week)
15.36	11	68.55	27
19.40	12	71.03	28
23.30	13	73.50	29
27.14	14	75.80	30
30.89	15	78.00	31
34.53	16	80.16	32
38.12	17	82.14	33
41.58	18	84.07	34
45.00	19	85.90	35
48.22	20	87.61	36
51.43	21	89.24	37
54.53	22	90.70	38
57.51	23	92.10	39
60.42	24	93.45	40
63.25	25	94.00	41
65.94	26		

1-1-26 Biparietal Diameter (BPD) CHITTY (outer - outer)

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

BPD (cm)	GA (weeks+days)			BPD (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
2.20	11w5d	12w4d	13w4d	6.00	21w4d	23w5d	25w6d
2.30	12w0d	12w6d	13w6d	6.10	21w6d	24w0d	26w2d
2.40	12w1d	13w1d	14w1d	6.20	22w1d	24w2d	26w5d
2.50	12w3d	13w3d	14w3d	6.30	22w4d	24w5d	27w0d
2.60	12w5d	13w4d	14w5d	6.40	22w6d	25w0d	27w3d
2.70	12w6d	13w6d	15w0d	6.50	23w1d	25w2d	27w6d
2.80	13w1d	14w1d	15w2d	6.60	23w3d	25w5d	28w2d
2.90	13w3d	14w3d	15w4d	6.70	23w5d	26w0d	28w4d
3.00	13w4d	14w5d	15w6d	6.80	24w0d	26w3d	29w0d
3.10	13w6d	15w0d	16w1d	6.90	24w2d	26w5d	29w3d
3.20	14w1d	15w2d	16w3d	7.00	24w4d	27w1d	29w6d
3.30	14w3d	15w4d	16w5d	7.10	25w0d	27w3d	30w2d
3.40	14w4d	15w5d	17w0d	7.20	25w2d	27w6d	30w4d
3.50	14w6d	16w0d	17w2d	7.30	25w4d	28w1d	31w0d
3.60	15w1d	16w2d	17w5d	7.40	25w6d	28w4d	31w3d
3.70	15w3d	16w4d	18w0d	7.50	26w2d	28w6d	31w6d
3.80	15w4d	16w6d	18w2d	7.60	26w4d	29w2d	32w2d
3.90	15w6d	17w1d	18w4d	7.70	26w6d	29w5d	32w5d
4.00	16w1d	17w3d	19w0d	7.80	27w1d	30w0d	33w1d
4.10	16w3d	17w5d	19w2d	7.90	27w4d	30w3d	33w4d
4.20	16w4d	18w0d	19w4d	8.00	27w6d	30w5d	34w0d
4.30	16w6d	18w2d	19w6d	8.10	28w1d	31w1d	34w3d
4.40	17w1d	18w4d	20w2d	8.20	28w3d	31w4d	34w6d
4.50	17w3d	19w0d	20w4d	8.30	28w6d	31w6d	35w2d
4.60	17w5d	19w2d	20w6d	8.40	29w1d	32w2d	35w6d
4.70	18w0d	19w4d	21w2d	8.50	29w4d	32w5d	36w2d
4.80	18w2d	19w6d	21w4d	8.60	29w6d	33w1d	36w5d
4.90	18w4d	20w1d	22w0d	8.70	30w1d	33w3d	37w1d
5.00	18w5d	20w3d	22w2d	8.80	30w4d	33w6d	37w4d
5.10	19w0d	20w5d	22w4d	8.90	30w6d	34w2d	38w1d
5.20	19w2d	21w1d	23w0d	9.00	31w1d	34w5d	38w4d
5.30	19w4d	21w3d	23w2d	9.10	31w4d	35w1d	39w0d
5.40	19w6d	21w5d	23w5d				
5.50	20w1d	22w0d	24w0d				
5.60	20w3d	22w2d	24w3d				
5.70	20w5d	22w5d	24w5d				
5.80	21w0d	23w0d	25w1d				
5.90	21w2d	23w2d	25w4d				

1-1-27 Biparietal Diameter (BPD) CHITTY (outer - inner)

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy"Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

BPD (cm)	GA (weeks+days)			BPD (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
2.10	11w6d	12w5d	13w5d	6.00	22w3d	24w4d	26w6d
2.20	12w1d	13w0d	14w0d	6.10	22w5d	24w6d	27w1d
2.30	12w3d	13w2d	14w2d	6.20	23w1d	25w2d	27w4d
2.40	12w4d	13w4d	14w4d	6.30	23w3d	25w4d	28w0d
2.50	12w6d	13w6d	14w6d	6.40	23w5d	26w0d	28w3d
2.60	13w1d	14w1d	15w1d	6.50	24w0d	26w2d	28w6d
2.70	13w3d	14w3d	15w3d	6.60	24w2d	26w5d	29w1d
2.80	13w4d	14w5d	15w5d	6.70	24w4d	27w0d	29w4d
2.90	13w6d	14w6d	16w0d	6.80	25w0d	27w3d	30w0d
3.00	14w1d	15w1d	16w2d	6.90	25w2d	27w5d	30w3d
3.10	14w3d	15w3d	16w5d	7.00	25w4d	28w1d	30w6d
3.20	14w4d	15w5d	17w0d	7.10	25w6d	28w3d	31w2d
3.30	14w6d	16w0d	17w2d	7.20	26w2d	28w6d	31w5d
3.40	15w1d	16w2d	17w4d	7.30	26w4d	29w2d	32w1d
3.50	15w3d	16w4d	17w6d	7.40	26w6d	29w4d	32w4d
3.60	15w5d	16w6d	18w2d	7.50	27w2d	30w0d	33w0d
3.70	15w6d	17w1d	18w4d	7.60	27w4d	30w2d	33w3d
3.80	16w1d	17w3d	18w6d	7.70	27w6d	30w5d	33w6d
3.90	16w3d	17w6d	19w2d	7.80	28w2d	31w1d	34w2d
4.00	16w5d	18w1d	19w4d	7.90	28w4d	31w4d	34w5d
4.10	17w0d	18w3d	19w6d	8.00	28w6d	31w6d	35w1d
4.20	17w2d	18w5d	20w2d	8.10	29w2d	32w2d	35w5d
4.30	17w4d	19w0d	20w4d	8.20	29w4d	32w5d	36w1d
4.40	17w6d	19w2d	20w6d	8.30	30w0d	33w1d	36w4d
4.50	18w1d	19w4d	21w2d	8.40	30w2d	33w3d	37w0d
4.60	18w3d	19w6d	21w4d	8.50	30w5d	33w6d	37w3d
4.70	18w5d	20w2d	22w0d	8.60	31w0d	34w2d	38w0d
4.80	19w0d	20w4d	22w2d	8.70	31w2d	34w5d	38w3d
4.90	19w2d	20w6d	22w5d	8.80	31w5d	35w1d	38w6d
5.00	19w4d	21w1d	23w0d	8.90	32w0d	35w4d	39w3d
5.10	19w6d	21w4d	23w3d				
5.20	20w1d	21w6d	23w5d				
5.30	20w3d	22w1d	24w1d				
5.40	20w5d	22w4d	24w4d				
5.50	21w0d	22w6d	24w6d				
5.60	21w2d	23w1d	25w2d				
5.70	21w4d	23w4d	25w4d				
5.80	21w6d	23w6d	26w0d				
5.90	22w1d	24w1d	26w3d				

1-1-28 Biparietal Diameter (BPD) Eik-Nes (1.Trimester)

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: mm
Output Unit: w(weeks)+d(days)
Min Range: 3 mm
Max Range: 25 mm

BPD (mm)	GA (Weeks+Days)
3	7w+5d
4	8w+0d
5	8w+2d
6	8w+4d
7	8w+6d
8	9w+0d
9	9w+2d
10	9w+4d
11	9w+6d
12	10w+1d
13	10w+3d
14	10w+5d
15	10w+6d
16	11w+1d
17	11w+3d
18	11w+5d
19	12w+0d
20	12w+1d
21	12w+3d
22	12w+4d
23	12w+6d
24	13w+0d
25	13w+2d

1-1-29 Biparietal Diameter (BPD) Eik-Nes

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: mm
Output Unit: w(weeks)+d(days)
Min Range: 25 mm
Max Range: 60 mm

BPD (mm)	GA (Weeks+Days)
25	13w+2d
26	13w+3d
27	13w+5d
28	14w+0d
29	14w+2d
30	14w+3d
31	14w+5d
32	15w+0d
33	15w+2d
34	15w+4d
35	15w+6d
36	16w+2d
37	16w+4d
38	16w+6d
39	17w+1d
40	17w+4d
41	17w+6d
42	18w+0d
43	18w+2d
44	18w+4d
45	18w+5d
46	19w+0d
47	19w+1d
48	19w+3d
49	19w+5d
50	20w+1d
51	20w+3d
52	20w+5d
53	21w+0d
54	21w+3d
55	21w+5d
56	22w+1d
57	22w+4d
58	22w+6d
59	23w+2d
60	23w+4d

1-1-30 Biparietal Diameter (BPD) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight" Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 6{,}895 + 2{,}63 \times BPD + 0{,}0088 \times BPD^3$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 2.6 cm

Max Range: 9.7 cm

Standard Deviation (±): 1SD = 1.50 weeks

BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)
2.60	13w6d	5.00	21w1d	7.40	29w6d
2.70	14w1d	5.10	21w4d	7.50	30w3d
2.80	14w4d	5.20	21w6d	7.60	30w6d
2.90	14w5d	5.30	22w1d	7.70	31w1d
3.00	15w0d	5.40	22w4d	7.80	31w4d
3.10	15w2d	5.50	22w6d	7.90	32w0d
3.20	15w4d	5.60	23w1d	8.00	32w4d
3.30	15w6d	5.70	23w4d	8.10	32w6d
3.40	16w1d	5.80	23w6d	8.20	33w2d
3.50	16w4d	5.90	24w1d	8.30	33w6d
3.60	16w6d	6.00	24w4d	8.40	34w1d
3.70	17w1d	6.10	25w0d	8.50	34w5d
3.80	17w3d	6.20	25w2d	8.60	35w1d
3.90	17w5d	6.30	25w5d	8.70	35w4d
4.00	18w0d	6.40	26w1d	8.80	36w1d
4.10	18w2d	6.50	26w3d	8.90	36w4d
4.20	18w4d	6.60	26w6d	9.00	37w0d
4.30	18w6d	6.70	27w1d	9.10	37w4d
4.40	19w1d	6.80	27w4d	9.20	38w0d
4.50	19w4d	6.90	28w0d	9.30	38w4d
4.60	19w6d	7.00	28w2d	9.40	38w6d
4.70	20w1d	7.10	28w5d	9.50	39w3d
4.80	20w4d	7.20	29w1d	9.60	39w6d
4.90	20w6d	7.30	29w4d	9.70	40w4d

1-1-31 Biparietal Diameter (BPD) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$GA = 9{,}54 + 1{,}482 \times BPD + 0{,}1676 \times BPD^2$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 1.40 cm

Max Range: 10.20 cm

Standard Deviation:

GA (weeks)		±2SD (weeks)
Low	High	
12	18	1.19
18	24	1.73
24	30	2.18
30	36	3.08
36	42	3.20

BPD	GA (weeks)		BPD	GA (weeks)		BPD	GA (weeks)		BPD	GA (weeks)	
(mm)	mean	±2SD	(mm)	mean	±2SD	(mm)	mean	±2SD	(mm)	mean	±2SD
<14	n/a	——	36	17.0	± 1.2	59	24.1	± 2.2	82	33.0	± 3.1
14	11.9	± 1.2	37	17.3	± 1.2	60	24.5	± 2.2	83	33.4	± 3.1
15	12.1	± 1.2	38	17.6	± 1.2	61	24.8	± 2.2	84	33.8	± 3.1
16	12.3	± 1.2	39	17.9	± 1.2	62	25.2	± 2.2	85	34.2	± 3.1
17	12.5	± 1.2	40	18.1	± 1.7	63	25.5	± 2.2	86	34.7	± 3.1
18	12.8	± 1.2	41	18.4	± 1.7	64	25.9	± 2.2	87	35.1	± 3.1
19	13.0	± 1.2	42	18.7	± 1.7	65	26.3	± 2.2	88	35.6	± 3.1
20	13.2	± 1.2	43	19.0	± 1.7	66	26.6	± 2.2	89	36.0	± 3.2
21	13.4	± 1.2	44	19.3	± 1.7	67	27.0	± 2.2	90	36.5	± 3.2
22	13.6	± 1.2	45	19.6	± 1.7	68	27.4	± 2.2	91	36.9	± 3.2
23	13.8	± 1.2	46	19.9	± 1.7	69	27.7	± 2.2	92	37.4	± 3.2
24	14.1	± 1.2	47	20.2	± 1.7	70	28.1	± 2.2	93	37.8	± 3.2
25	14.3	± 1.2	48	20.5	± 1.7	71	28.5	± 2.2	94	38.3	± 3.2
26	14.5	± 1.2	49	20.8	± 1.7	72	28.9	± 2.2	95	38.7	± 3.2
27	14.8	± 1.2	50	21.1	± 1.7	73	29.3	± 2.2	96	39.2	± 3.2
28	15.0	± 1.2	51	21.5	± 1.7	74	29.7	± 2.2	97	39.7	± 3.2
29	15.2	± 1.2	52	21.8	± 1.7	75	30.1	± 3.1	98	40.2	± 3.2
30	15.5	± 1.2	53	22.1	± 1.7	76	30.5	± 3.1	99	40.6	± 3.2
31	15.7	± 1.2	54	22.4	± 1.7	77	30.9	± 3.1	100	41.1	± 3.2
32	16.0	± 1.2	55	22.8	± 1.7	78	31.3	± 3.1	101	41.6	± 3.2
33	16.3	± 1.2	56	23.1	± 1.7	79	31.7	± 3.1	102	42.1	± 3.2
34	16.5	± 1.2	57	23.4	± 1.7	80	32.1	± 3.1	103	42.6	± 3.2
35	16.8	± 1.2	58	23.8	± 1.7	81	32.5	± 3.1	>103	n/a	——

1-1-32 Biparietal Diameter (BPD) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986. p.440-441

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
2.90	12w2d	13w3d	14w3d	6.80	24w3d	25w6d	27w2d
3.00	12w5d	13w5d	14w5d	6.90	24w6d	26w1d	27w4d
3.10	12w6d	14w0d	15w1d	7.00	25w0d	26w3d	27w6d
3.20	13w2d	14w2d	15w3d	7.10	25w2d	26w5d	28w3d
3.30	13w3d	14w4d	15w6d	7.20	25w4d	27w1d	28w4d
3.40	13w5d	15w0d	16w2d	7.30	26w0d	27w3d	29w2d
3.50	14w1d	15w2d	16w3d	7.40	26w1d	27w6d	29w4d
3.60	14w3d	15w4d	16w6d	7.50	26w3d	28w1d	29w6d
3.70	14w6d	16w0d	17w1d	7.60	26w5d	28w4d	30w2d
3.80	15w0d	16w2d	17w4d	7.70	27w1d	28w6d	30w5d
3.90	15w3d	16w4d	17w6d	7.80	27w2d	29w2d	31w3d
4.00	15w5d	17w0d	18w1d	7.90	27w3d	29w5d	32w0d
4.10	16w0d	17w2d	18w4d	8.00	27w6d	30w0d	32w1d
4.20	16w3d	17w4d	18w6d	8.10	28w2d	30w3d	32w4d
4.30	16w4d	17w6d	19w1d	8.20	28w6d	31w0d	33w1d
4.40	16w6d	18w1d	19w3d	8.30	29w0d	31w2d	33w5d
4.50	17w2d	18w4d	19w6d	8.40	29w3d	31w6d	34w2d
4.60	17w4d	18w6d	20w1d	8.50	29w6d	32w2d	34w4d
4.70	17w6d	19w1d	20w4d	8.60	30w1d	32w5d	35w1d
4.80	18w0d	19w3d	20w6d	8.70	30w2d	33w2d	36w1d
4.90	18w1d	19w5d	21w1d	8.80	31w0d	33w5d	36w3d
5.00	18w4d	20w0d	21w1d	8.90	31w4d	34w2d	37w0d
5.10	19w0d	20w3d	21w6d	9.00	32w0d	34w5d	37w3d
5.20	19w2d	20w5d	22w1d	9.10	32w1d	35w1d	38w5d
5.30	19w3d	21w0d	22w4d	9.20	33w2d	35w6d	39w2d
5.40	20w0d	21w3d	22w6d	9.30	33w5d	36w5d	39w5d
5.50	20w2d	21w5d	23w0d	9.40	34w5d	37w3d	40w1d
5.60	20w5d	22w0d	23w2d	9.50	35w2d	38w3d	41w0d
5.70	21w0d	22w2d	23w4d	9.60	35w2d	38w6d	41w3d
5.80	21w3d	22w5d	23w6d	9.70	35w6d	39w0d	42w0d
5.90	21w4d	23w0d	24w3d	9.80	36w3d	39w2d	42w0d
6.00	21w6d	23w2d	24w4d	9.90	36w4d	39w3d	42w4d
6.10	22w1d	23w4d	25w0d	10.00	36w5d	39w4d	42w2d
6.20	22w4d	24w0d	25w3d	10.10	37w1d	39w5d	42w4d
6.30	22w6d	24w2d	25w4d	10.20	37w1d	39w6d	42w2d
6.40	23w1d	24w4d	26w0d	10.30	37w2d	40w0d	42w2d
6.50	23w4d	24w6d	26w2d	10.40	37w3d	40w1d	42w2d
6.60	23w6d	25w1d	26w5d	10.50	37w6d	40w2d	42w2d
6.70	24w1d	25w3d	27w1d				

1-1-33 Biparietal Diameter (BPD) HOBBINS

Reference: Document by E-Mail of Hobbins

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

$$GA = 10{,}623 - (0{,}20277 \times BPD) + (0{,}022278 \times BPD^2) - (0{,}00048221 \times BPD^3) + (0{,}501 \times 10^{-5} \times BPD^4) - (0{,}2 \times 10^{-7} \times BPD^5)$$

1-1-34 Biparietal Diameter (BPD) JEANTY

Reference: Jeanty P., Romero R. "Obstetrical Ultrasound" McGraw-Hill Book Company, pages 57-61, 1984.

BPD	GA (weeks + days)			BPD	GA (weeks + days)			BPD	GA (weeks + days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
1.00	6w4d	9w1d	11w6d	3.90	14w2d	17w0d	19w5d	6.80	23w5d	26w3d	29w0d
1.10	6w6d	9w4d	12w1d	4.00	14w4d	17w2d	19w6d	6.90	24w0d	26w5d	29w3d
1.20	7w0d	9w5d	12w3d	4.10	14w6d	17w4d	20w1d	7.00	24w3d	27w1d	29w6d
1.30	7w2d	10w0d	12w5d	4.20	15w1d	17w6d	20w4d	7.10	24w6d	27w4d	30w1d
1.40	7w4d	10w2d	12w6d	4.30	15w3d	18w1d	20w6d	7.20	25w1d	27w6d	30w4d
1.50	7w6d	10w4d	13w1d	4.40	15w5d	18w3d	21w1d	7.30	25w4d	28w2d	30w6d
1.60	8w1d	10w6d	13w3d	4.50	16w0d	18w5d	21w3d	7.40	26w0d	28w5d	31w2d
1.70	8w3d	11w1d	13w5d	4.60	16w2d	19w0d	21w5d	7.50	26w3d	29w1d	31w5d
1.80	8w4d	11w2d	14w0d	4.70	16w4d	19w2d	22w0d	7.60	26w6d	29w4d	32w1d
1.90	8w6d	11w4d	14w1d	4.80	16w6d	19w4d	22w2d	7.70	27w1d	29w6d	32w4d
2.00	9w1d	11w6d	14w4d	4.90	17w1d	19w6d	22w4d	7.80	27w4d	30w2d	33w0d
2.10	9w3d	12w1d	14w6d	5.00	17w4d	20w2d	22w6d	7.90	28w0d	30w5d	33w3d
2.20	9w5d	12w3d	15w0d	5.10	17w6d	20w4d	23w1d	8.00	28w4d	31w1d	33w6d
2.30	9w6d	12w4d	15w2d	5.20	18w1d	20w6d	23w4d	8.10	28w6d	31w4d	34w2d
2.40	10w1d	12w6d	15w4d	5.30	18w4d	21w1d	23w6d	8.20	29w2d	32w0d	34w5d
2.50	10w4d	13w1d	15w6d	5.40	18w6d	21w4d	24w1d	8.30	29w6d	32w4d	35w1d
2.60	10w5d	13w3d	16w1d	5.50	19w1d	21w6d	24w4d	8.40	30w1d	32w6d	35w4d
2.70	11w0d	13w5d	16w3d	5.60	19w4d	22w1d	24w6d	8.50	30w5d	33w3d	36w0d
2.80	11w2d	14w0d	16w4d	5.70	19w6d	22w4d	25w1d	8.60	31w1d	33w6d	36w4d
2.90	11w4d	14w1d	16w6d	5.80	20w1d	22w6d	25w4d	8.70	31w4d	34w2d	37w0d
3.00	11w6d	14w4d	17w1d	5.90	20w4d	23w1d	25w6d	8.80	32w1d	34w6d	37w3d
3.10	12w1d	14w6d	17w3d	6.00	20w6d	23w4d	26w1d	8.90	32w4d	35w2d	37w6d
3.20	12w2d	15w1d	17w5d	6.10	21w1d	23w6d	26w4d	9.00	33w0d	35w5d	38w3d
3.30	12w4d	15w2d	18w0d	6.20	21w4d	24w1d	26w6d	9.10	33w4d	36w1d	38w6d
3.40	12w6d	15w4d	18w2d	6.30	21w6d	24w4d	27w1d	9.20	34w0d	36w5d	39w3d
3.50	13w1d	15w6d	18w4d	6.40	22w1d	24w6d	27w4d	9.30	34w4d	37w1d	39w6d
3.60	13w4d	16w1d	18w6d	6.50	22w4d	25w2d	27w6d	9.40	35w0d	37w5d	40w3d
3.70	13w5d	16w3d	19w1d	6.60	22w6d	25w4d	28w2d	9.50	35w4d	38w2d	40w6d
3.80	14w0d	16w5d	19w3d	6.70	23w2d	26w0d	28w4d				

1-1-35 Biparietal Diameter (BPD) JOHNSEN

Reference: Johnsen,S.L., Rasmussen,S., Sollien,R., Kiserud,T.,"Fetal age assessment based on ultrasound head biometry and the effect of maternal and fetal factors", Acta Obstet Gynecol.Scand. Vol. 83 No. 8, 2004, pages 716-723.

BPD (cm)	GA(weeks + days)			BPD (cm)	GA(weeks + days)		
	10%	50%	90%		10%	50%	90%
1.4	9w6d	10w3d	10w6d	3.8	15w6d	16w5d	17w4d
1.5	10w1d	10w5d	11w2d	3.9	16w1d	17w0d	17w6d
1.6	10w3d	10w6d	11w3d	4.0	16w3d	17w2d	18w1d
1.7	10w4d	11w1d	11w5d	4.1	16w5d	17w4d	18w3d
1.8	10w6d	11w3d	12w0d	4.2	17w0d	17w6d	18w5d
1.9	11w1d	11w5d	12w2d	4.3	17w2d	18w1d	19w1d
2.0	11w2d	12w0d	12w4d	4.4	17w4d	18w3d	19w3d
2.1	11w4d	12w2d	12w6d	4.5	17w6d	18w5d	19w5d
2.2	11w6d	12w3d	13w1d	4.6	18w1d	19w0d	20w0d
2.3	12w1d	12w5d	13w3d	4.7	18w3d	19w3d	20w3d
2.4	12w2d	13w0d	13w5d	4.8	18w5d	19w5d	20w5d
2.5	12w4d	13w2d	14w0d	4.9	19w0d	20w0d	21w0d
2.6	12w6d	13w3d	14w1d	5.0	19w2d	20w2d	21w3d
2.7	13w0d	13w5d	14w3d	5.1	19w4d	20w4d	21w5d
2.8	13w2d	14w0d	14w5d	5.2	20w0d	21w0d	22w0d
2.9	13w4d	14w2d	15w0d	5.3	20w2d	21w2d	22w3d
3.0	13w6d	14w4d	15w2d	5.4	20w4d	21w4d	22w5d
3.1	14w0d	14w6d	15w4d	5.5	20w6d	22w0d	23w1d
3.2	14w2d	15w0d	15w6d	5.6	21w2d	22w2d	23w3d
3.3	14w4d	15w2d	16w1d	5.7	21w4d	22w5d	23w6d
3.4	14w6d	15w4d	16w3d	5.8	21w6d	23w0d	24w1d
3.5	15w1d	15w6d	16w5d	5.9	22w2d	23w3d	24w4d
3.6	15w2d	16w1d	17w0d	6.0	22w4d	23w5d	25w0d
3.7	15w4d	16w3d	17w2d				

1-1-36 Biparietal Diameter (BPD) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J.Med. Ultrasonics Vol.28.5 (2001)

BPD (cm)	GA (w+d/d)		BPD (cm)	GA (w+d/d)	
	mean	±1SD		mean	±1SD
1.30	10w1d	4	5.20	21w6d	7
1.40	10w3d	4	5.30	22w1d	8
1.50	10w5d	4	5.40	22w3d	8
1.60	11w0d	4	5.50	22w5d	8
1.70	11w2d	4	5.60	23w1d	8
1.80	11w4d	4	5.70	23w3d	8
1.90	11w6d	4	5.80	23w5d	8
2.00	12w1d	4	5.90	24w1d	8
2.10	12w3d	4	6.00	24w3d	9
2.20	12w6d	4	6.10	24w5d	9
2.30	13w1d	5	6.20	25w1d	9
2.40	13w3d	5	6.30	25w3d	9
2.50	13w5d	5	6.40	25w5d	9
2.60	14w0d	5	6.50	26w1d	9
2.70	14w2d	5	6.60	26w3d	10
2.80	14w4d	5	6.70	26w6d	10
2.90	14w6d	5	6.80	27w2d	10
3.00	15w1d	5	6.90	27w4d	10
3.10	15w3d	5	7.00	28w0d	10
3.20	15w5d	5	7.10	28w3d	10
3.30	16w0d	5	7.20	28w5d	11
3.40	16w2d	5	7.30	29w1d	11
3.50	16w4d	5	7.40	29w4d	11
3.60	16w6d	6	7.50	30w0d	11
3.70	17w1d	6	7.60	30w3d	11
3.80	17w4d	6	7.70	30w6d	12
3.90	17w6d	6	7.80	31w2d	12
4.00	18w1d	6	7.90	31w5d	12
4.10	18w3d	6	8.00	32w1d	12
4.20	18w5d	6	8.10	32w5d	12
4.30	19w0d	6	8.20	33w1d	13
4.40	19w2d	6	8.30	33w5d	13
4.50	19w4d	6	8.40	34w2d	13
4.60	20w0d	7	8.50	34w6d	13
4.70	20w2d	7	8.60	35w3d	14
4.80	20w4d	7	8.70	36w0d	14
4.90	20w6d	7	8.80	36w5d	14
5.00	21w1d	7	8.90	37w4d	14
5.10	21w3d	7	9.00	38w3d	15

1-1-37 Biparietal Diameter (BPD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik uns Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

BPD (cm)	GA (w + d)	BPD (cm)	GA (w + d)	BPD (cm)	GA (w + d)
2.1	12w0d	4.8	19w2d	7.5	28w0d
2.2	12w2d	4.9	19w4d	7.6	28w3d
2.3	12w3d	5.0	19w6d	7.7	28w6d
2.4	12w5d	5.1	20w1d	7.8	29w1d
2.5	13w0d	5.2	20w3d	7.9	29w4d
2.6	13w2d	5.3	20w5d	8.0	30w0d
2.7	13w4d	5.4	21w0d	8.1	30w3d
2.8	13w5d	5.5	21w2d	8.2	30w6d
2.9	14w0d	5.6	21w4d	8.3	31w1d
3.0	14w2d	5.7	22w0d	8.4	31w4d
3.1	14w4d	5.8	22w2d	8.5	32w1d
3.2	14w6d	5.9	22w4d	8.6	32w4d
3.3	15w1d	6.0	22w6d	8.7	33w0d
3.4	15w3d	6.1	23w1d	8.8	33w3d
3.5	15w5d	6.2	23w4d	8.9	34w0d
3.6	16w0d	6.3	23w6d	9.0	34w4d
3.7	16w2d	6.4	24w1d	9.1	35w0d
3.8	16w4d	6.5	24w4d	9.2	35w4d
3.9	16w6d	6.6	24w6d	9.3	36w2d
4.0	17w0d	6.7	25w1d	9.4	36w6d
4.1	17w2d	6.8	25w4d	9.5	37w4d
4.2	17w4d	6.9	25w6d	9.6	38w2d
4.3	17w6d	7.0	26w2d	9.7	39w1d
4.4	18w1d	7.1	26w4d	9.8	39w6d
4.5	18w3d	7.2	27w0d	9.9	40w6d
4.6	18w5d	7.3	27w2d	10.0	41w5d
4.7	19w0d	7.4	27w5d		

1-1-38 Biparietal Diameter (BPD) KURTZ

Reference: *Kurtz A.B., Wapner R.J., Kurtz R.J., Dershaw D., Rubin C.S., Cole-Beuglet C., Goldberg B.B, "Analysis of Biparietal Diameter as an Accurate Indicator of Gestational Age" J Clin Ultrasound 8:319-326; August 1980*

Input Unit: cm
Output Unit: w (weeks)
Min Range: 20 mm
Max Range: 98 mm

BPD (mm)	GA (weeks)			BPD (mm)	GA (weeks			BPD (mm)	GA (weeks)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
20	12.0	12.0	12.0	47	17.8	19.7	21.6	74	28.1	29.1	30.1
21	12.0	12.0	12.0	48	18.2	20.0	21.8	75	28.5	29.5	30.5
22	12.2	12.7	13.2	49	18.6	20.3	22	76	29.0	30.0	31.0
23	12.4	13.0	13.6	50	19.0	20.6	22.2	77	29.2	30.3	31.4
24	12.6	13.2	13.8	51	19.3	20.9	22.5	78	29.6	30.8	32.0
25	12.9	13.5	14.1	52	19.5	21.2	22.9	79	29.9	31.2	32.5
26	13.1	13.7	14.3	53	19.8	21.5	23.2	80	30.2	31.6	33.0
27	13.4	14.0	14.6	54	20.1	21.9	23.7	81	30.7	32.1	33.5
28	13.6	14.3	15.0	55	20.4	22.2	24.0	82	31.2	32.6	34.0
29	13.9	14.55	15.2	56	20.7	22.5	24.3	83	31.5	33.0	34.5
30	14.1	14.8	15.5	57	21.1	22.8	24.5	84	31.9	33.5	35.1
31	14.3	15.1	15.9	58	21.5	23.2	24.9	85	32.3	34.0	35.7
32	14.5	15.3	16.1	59	21.9	23.5	25.1	86	32.8	34.5	36.2
33	14.7	15.6	16.5	60	22.3	23.9	25.5	87	33.4	35.0	36.6
34	15.0	15.9	16.8	61	22.6	24.2	25.8	88	33.9	35.5	37.1
35	15.2	16.2	17.2	62	23.1	24.6	26.1	89	34.6	36.1	37.6
36	15.4	16.4	17.4	63	23.4	24.9	26.4	90	35.1	36.6	38.1
37	15.6	16.7	17.8	64	23.8	25.3	26.8	91	35.9	37.2	38.5
38	15.9	17.0	18.1	65	24.1	25.6	27.1	92	36.7	37.8	38.9
39	16.1	17.3	18.5	66	24.5	26.0	27.5	93	37.3	38.3	39.3
40	16.4	17.6	18.8	67	25.0	26.4	27.8	94	37.9	39.0	40.1
41	16.5	17.9	19.3	68	25.3	26.7	28.1	95	38.5	39.7	40.9
42	16.6	18.2	19.8	69	25.8	27.1	28.4	96	39.1	40.3	41.5
43	16.8	18.5	20.2	70	26.3	27.5	28.7	97	39.9	41.0	42.1
44	16.9	18.8	20.7	71	26.7	27.9	29.1	98	40.5	41.8	43.1
45	17.0	19.1	21.2	72	27.2	28.3	29.4				
46	17.4	19.4	21.4	73	27.6	28.7	29.8				

1-1-39 Biparietal Diameter (BPD) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Textbook and Atlas, 1991 Georg Thieme Verlag, pp.326

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
2.10	10w5d	12w1d	13w5d	4.90	18w1d	20w0d	21w6d	7.70	27w1d	29w3d	31w4d
2.20	10w6d	12w3d	13w6d	5.00	18w4d	20w3d	22w1d	7.80	27w4d	29w6d	32w0d
2.30	11w1d	12w5d	14w1d	5.10	18w6d	20w5d	22w4d	7.90	27w6d	30w1d	32w2d
2.40	11w4d	13w0d	14w4d	5.20	19w1d	21w0d	22w6d	8.00	28w2d	30w4d	32w5d
2.50	11w5d	13w1d	14w5d	5.30	19w3d	21w2d	23w1d	8.10	28w5d	30w6d	33w1d
2.60	12w0d	13w4d	15w0d	5.40	19w5d	21w4d	23w4d	8.20	29w1d	31w2d	33w4d
2.70	12w1d	13w6d	15w3d	5.50	20w0d	21w6d	23w6d	8.30	29w4d	31w5d	33w6d
2.80	12w4d	14w1d	15w5d	5.60	20w2d	22w1d	24w1d	8.40	29w6d	32w1d	34w2d
2.90	12w5d	14w2d	15w6d	5.70	20w4d	22w4d	24w3d	8.50	30w2d	32w4d	34w5d
3.00	13w0d	14w4d	16w1d	5.80	20w6d	22w6d	24w5d	8.60	30w5d	32w6d	35w1d
3.10	13w2d	14w6d	16w4d	5.90	21w1d	23w1d	25w1d	8.70	31w0d	33w2d	35w4d
3.20	13w4d	15w1d	16w6d	6.00	21w4d	23w4d	25w4d	8.80	31w4d	33w6d	36w1d
3.30	13w6d	15w3d	17w0d	6.10	21w6d	23w6d	25w6d	8.90	31w6d	34w1d	36w4d
3.40	14w0d	15w5d	17w3d	6.20	22w1d	24w1d	26w1d	9.00	32w2d	34w4d	36w6d
3.50	14w2d	16w0d	17w5d	6.30	22w4d	24w4d	26w4d	9.10	32w6d	35w1d	37w3d
3.60	14w4d	16w2d	18w0d	6.40	22w6d	24w6d	26w6d	9.20	33w1d	35w4d	37w6d
3.70	14w6d	16w4d	18w1d	6.50	23w1d	25w1d	27w1d	9.30	33w4d	35w6d	38w1d
3.80	15w1d	16w6d	18w4d	6.60	23w4d	25w4d	27w4d	9.40	34w0d	36w3d	38w6d
3.90	15w3d	17w1d	18w6d	6.70	23w6d	25w6d	27w6d	9.50	34w4d	36w6d	39w2d
4.00	15w5d	17w3d	19w1d	6.80	24w1d	26w1d	28w2d	9.60	34w6d	37w2d	39w5d
4.10	15w6d	17w5d	19w4d	6.90	24w3d	26w4d	28w4d	9.70	35w3d	37w6d	40w1d
4.20	16w1d	18w0d	19w6d	7.00	24w5d	26w6d	28w6d	9.80	35w6d	38w2d	40w5d
4.30	16w4d	18w2d	20w1d	7.10	25w1d	27w1d	29w2d	9.90	36w3d	38w6d	41w1d
4.40	16w6d	18w4d	20w3d	7.20	25w4d	27w4d	29w5d	10.00	36w6d	39w2d	41w6d
4.50	17w1d	18w6d	20w5d	7.30	25w6d	27w6d	30w0d	10.10	37w2d	39w6d	42w2d
4.60	17w3d	19w1d	21w0d	7.40	26w1d	28w2d	30w3d	10.20	37w6d	40w2d	42w6d
4.70	17w4d	19w3d	21w1d	7.50	26w4d	28w4d	30w5d				
4.80	17w6d	19w5d	21w4d	7.60	26w6d	29w0d	31w1d				

1-1-40 Biparietal Diameter (BPD) McLENNAN

Reference: Construction of modern Australian first trimester ultrasound dating and growth charts Journal of Medical Imaging and Radiation Oncology (2008) 52, 471–479

Input Unit: mm
Output Unit: d (days)
Min Range: 10.0 mm
Max Range: 26.5 mm

BPD (mm)	GA (d)		
	5%	50%	95%
10.0	63	64	65
10.5	64	65	66
11.0	64	66	68
11.5	65	67	69
12.0	66	68	70
12.5	67	69	71
13.0	69	71	73
13.5	69	72	75
14.0	70	73	76
14.5	71	74	77
15.0	72	75	78
15.5	74	77	80
16.0	75	78	81
16.5	76	79	82
17.0	77	80	83
17.5	77	81	85
18.0	78	82	86
18.5	79	83	87
19.0	80	84	88
19.5	81	85	89
20.0	82	86	90
20.5	82	86	90
21.0	83	87	91
21.5	84	88	92
22.0	85	89	93
22.5	85	89	93
23.0	86	90	94
23.5	87	91	95
24.0	87	91	95
24.5	87	92	97
25.0	87	92	97
25.5	88	93	98
26.0	88	93	98
26.5	89	94	99

1-1-41 Biparietal Diameter (BPD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD (50% values) are used as Input and GA as Output!

BPD (cm)	GA (week)
Median	
3.10	14
3.40	15
3.70	16
4.00	17
4.30	18
4.60	19
4.90	20
5.20	21
5.60	22
5.90	23
6.20	24
6.60	25
6.90	26
7.20	27
7.50	28
7.80	29
8.10	30
8.30	31
8.60	32
8.80	33
9.00	34
9.20	35
9.40	36
9.50	37
9.60	38
9.70	39

1-1-42 Biparietal Diameter (BPD) OSAKA

Reference: Perinatal care Vol. 9 No. 5

BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)	BPD (cm)	GA (w+d)
1.33	10w0d	3.18	15w0d	4.90	20w1d	6.43	25w1d	7.78	30w1d	8.83	35w1d
1.38	10w1d	3.23	15w1d	4.94	20w2d	6.47	25w2d	7.81	30w2d	8.85	35w2d
1.44	10w2d	3.28	15w2d	4.99	20w3d	6.51	25w3d	7.85	30w3d	8.87	35w3d
1.50	10w3d	3.33	15w3d	5.03	20w4d	6.55	25w4d	7.88	30w4d	8.90	35w4d
1.55	10w4d	3.38	15w4d	5.08	20w5d	6.59	25w5d	7.92	30w5d	8.92	35w5d
1.61	10w5d	3.42	15w5d	5.12	20w6d	6.63	25w6d	7.95	30w6d	8.94	35w6d
1.66	10w6d	3.47	15w6d	5.17	21w0d	6.67	26w0d	7.98	31w0d	8.96	36w0d
1.72	11w0d	3.52	16w0d	5.21	21w1d	6.71	26w1d	8.02	31w1d	8.98	36w1d
1.77	11w1d	3.57	16w1d	5.26	21w2d	6.75	26w2d	8.05	31w2d	9.00	36w2d
1.83	11w2d	3.62	16w2d	5.30	21w3d	6.80	26w3d	8.08	31w3d	9.02	36w3d
1.88	11w3d	3.67	16w3d	5.35	21w4d	6.84	26w4d	8.12	31w4d	9.04	36w4d
1.93	11w4d	3.72	16w4d	5.39	21w5d	6.88	26w5d	8.15	31w5d	9.06	36w5d
1.99	11w5d	3.77	16w5d	5.44	21w6d	6.92	26w6d	8.18	31w6d	9.08	36w6d
2.04	11w6d	3.81	16w6d	5.48	22w0d	6.95	27w0d	8.21	32w0d	9.10	37w0d
2.09	12w0d	3.86	17w0d	5.52	22w1d	6.99	27w1d	8.24	32w1d	9.12	37w1d
2.15	12w1d	3.91	17w1d	5.57	22w2d	7.03	27w2d	8.27	32w2d	9.14	37w2d
2.20	12w2d	3.96	17w2d	5.61	22w3d	7.07	27w3d	8.31	32w3d	9.15	37w3d
2.25	12w3d	4.01	17w3d	5.66	22w4d	7.11	27w4d	8.34	32w4d	9.17	37w4d
2.31	12w4d	4.05	17w4d	5.70	22w5d	7.15	27w5d	8.37	32w5d	9.18	37w5d
2.36	12w5d	4.10	17w5d	5.74	22w6d	7.19	27w6d	8.40	32w6d	9.20	37w6d
2.41	12w6d	4.15	17w6d	5.79	23w0d	7.23	28w0d	8.43	33w0d	9.21	38w0d
2.46	13w0d	4.20	18w0d	5.83	23w1d	7.27	28w1d	8.46	33w1d	9.23	38w1d
2.52	13w1d	4.24	18w1d	5.87	23w2d	7.30	28w2d	8.48	33w2d	9.24	38w2d
2.57	13w2d	4.29	18w2d	5.92	23w3d	7.34	28w3d	8.51	33w3d	9.26	38w3d
2.62	13w3d	4.34	18w3d	5.96	23w4d	7.38	28w4d	8.54	33w4d	9.27	38w4d
2.67	13w4d	4.39	18w4d	6.00	23w5d	7.42	28w5d	8.57	33w5d	9.28	38w5d
2.72	13w5d	4.43	18w5d	6.05	23w6d	7.45	28w6d	8.60	33w6d	9.29	38w6d
2.77	13w6d	4.48	18w6d	6.09	24w0d	7.49	29w0d	8.62	34w0d	9.30	39w0d
2.82	14w0d	4.53	19w0d	6.13	24w1d	7.53	29w1d	8.65	34w1d	9.31	39w1d
2.87	14w1d	4.57	19w1d	6.17	24w2d	7.56	29w2d	8.68	34w2d	9.32	39w2d
2.93	14w2d	4.62	19w2d	6.22	24w3d	7.60	29w3d	8.70	34w3d	9.33	39w3d
2.98	14w3d	4.67	19w3d	6.26	24w4d	7.64	29w4d	8.73	34w4d	9.34	39w4d
3.03	14w4d	4.71	19w4d	6.30	24w5d	7.67	29w5d	8.75	34w5d	9.35	39w5d
3.08	14w5d	4.76	19w5d	6.34	24w6d	7.71	29w6d	8.78	34w6d	9.36	39w6d
3.13	14w6d	4.85	20w0d	6.39	25w0d	7.74	30w0d	8.80	35w0d	9.36	40w0d

1-1-43 Biparietal Diameter (BPD) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: BPD and GA Values are taken from Fetal Growth Table; BPD values are used as Input and GA as Output!

BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)
3.0	49	33.0	107	50.6	147	68.5	187	84.7	227	93.6	267
4.0	51	33.4	108	51.0	148	69.0	188	85.0	228	93.8	268
5.0	53	33.8	109	51.5	149	69.5	189	85.3	229	94.0	269
6.0	55	34.2	110	52.0	150	70.0	190	85.5	230	94.2	270
7.0	57	34.6	111	52.5	151	70.4	191	85.8	231	94.4	271
8.0	59	35.0	112	53.0	152	70.8	192	86.0	232	94.6	272
9.0	61	35.5	113	53.4	153	71.2	193	86.3	233	94.7	273
10.0	63	36.0	114	53.8	154	71.6	194	86.6	234	94.8	274
11.0	66	36.5	115	54.2	155	72.0	195	86.8	235	94.9	275
12.0	68	37.0	116	54.6	156	72.5	196	87.0	236	95.0	276
13.0	70	37.4	117	55.0	157	73.0	197	87.3	237	95.1	277
14.0	72	37.8	118	55.5	158	73.5	198	87.5	238	95.2	278
15.0	74	38.2	119	56.0	159	74.0	199	87.8	239	95.3	279
16.0	77	38.6	120	56.5	160	74.4	200	88.0	240	95.4	280
17.0	79	39.0	121	57.0	161	74.8	201	88.3	241	95.5	281
18.0	81	39.5	122	57.5	162	75.2	202	88.5	242	95.6	282
19.0	83	40.0	123	58.0	163	75.6	203	88.8	243	95.7	283
19.6	84	40.5	124	58.4	164	76.0	204	89.0	244	95.8	284
20.3	85	41.0	125	58.8	165	76.5	205	89.2	245	95.9	285
20.9	86	41.4	126	59.2	166	77.0	206	89.4	246	96.0	286
21.5	87	41.8	127	59.6	167	77.5	207	89.6	247	96.1	287
22.0	88	42.2	128	60.0	168	78.0	208	89.8	248	96.2	288
22.6	89	42.6	129	60.5	169	78.4	209	90.0	249	96.3	289
23.2	90	43.0	130	61.0	170	78.8	210	90.2	250	96.3	290
23.9	91	43.5	131	61.5	171	79.2	211	90.4	251	96.4	291
24.5	92	44.0	132	62.0	172	79.6	212	90.6	252	96.5	292
25.0	93	44.5	133	62.4	173	80.0	213	90.8	253	96.6	293
26.0	94	45.0	134	62.8	174	80.3	214	91.0	254	96.7	294
26.5	95	45.4	135	63.2	175	80.7	215	91.2	255	96.8	295
27.0	96	45.8	136	63.6	176	81.0	216	91.4	256	96.9	296
28.0	97	46.2	137	64.0	177	81.3	217	91.6	257	96.9	297
28.5	98	46.6	138	64.5	178	81.7	218	91.8	258	96.9	298
29.0	99	47.0	139	65.0	179	82.0	219	92.0	259	97.0	299
29.5	100	47.5	140	65.5	180	82.3	220	92.2	260	97.0	300
30.0	101	48.0	141	66.0	181	82.7	221	92.4	261		
30.5	102	48.5	142	66.4	182	83.0	222	92.6	262		
31.0	103	49.0	143	66.8	183	83.3	223	92.8	263		
31.5	104	49.4	144	67.2	184	83.7	224	93.0	264		
32.0	105	49.8	145	67.6	185	84.0	225	93.2	265		
32.5	106	50.2	146	68.0	186	84.3	226	93.4	266		

1-1-44 Biparietal Diameter (BPD) REMPEN

Reference: Rempen, A. Chaoui, R. Kozlowski, P. Häusler, M. Terinde, R. Wisse "Standards zur Ultraschalluntersuchung in der Frühschwangerschaft"; publiziert in: Der Frauenarzt 42 (2001) 327 ff.

BPD (cm)	GA (weeks + days)		
	5%	50%	95%
0.30	6w1d	6w6d	7w3d
0.40	6w3d	7w1d	7w6d
0.50	6w5d	7w3d	8w1d
0.60	7w0d	7w5d	8w4d
0.70	7w2d	8w0d	8w6d
0.80	7w4d	8w2d	9w1d
0.90	7w6d	8w4d	9w3d
1.00	8w1d	8w6d	9w5d
1.10	8w2d	9w1d	10w1d
1.20	8w4d	9w3d	10w3d
1.30	8w6d	9w5d	10w5d
1.40	9w1d	10w0d	11w0d
1.50	9w3d	10w2d	11w2d
1.60	9w4d	10w4d	11w5d
1.70	9w6d	10w6d	12w0d
1.80	10w1d	11w1d	12w2d
1.90	10w3d	11w3d	12w4d
2.00	10w5d	11w5d	13w0d
2.10	11w0d	12w1d	13w2d
2.20	11w2d	12w3d	13w5d

1-1-45 Biparietal Diameter (BPD) SABBAGHA

Reference: Sabbagha R.E., Barton B.A., Barton F.B., Kingas E., Orgill J., Turner J.H.
"Sonar biparietal diameter II. Predictive of three fetal growth patterns leading to a closer assessment of gestational age and neonatal weight"
American Journal of Obstetrics and Gynecology; October 15; 1976; pp.485-490

Input Unit: cm
Output Unit: w (weeks)
Min Range: 3.50 cm
Max Range: 9.50 cm

BPD (cm)	GA (weeks + days)			BPD (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
3.50	15w2d	16w0d	17w2d	6.60	23w5d	26w0d	27w5d
3.60	15w2d	16w2d	18w0d	6.70	24w0d	26w2d	28w0d
3.70	16w0d	16w5d	19w0d	6.80	24w2d	26w5d	28w2d
3.80	16w0d	17w0d	19w0d	6.90	24w5d	27w0d	29w0d
3.90	16w0d	17w2d	19w2d	7.00	24w5d	27w2d	29w2d
4.00	16w0d	17w5d	19w2d	7.10	25w2d	27w5d	30w0d
4.10	16w0d	18w0d	19w2d	7.20	25w2d	27w5d	30w5d
4.20	16w2d	18w2d	19w5d	7.30	25w5d	28w0d	31w0d
4.30	16w5d	18w5d	20w0d	7.40	26w0d	28w2d	31w5d
4.40	17w0d	19w0d	20w2d	7.50	26w2d	28w5d	32w0d
4.50	17w2d	19w2d	20w5d	7.60	26w5d	29w0d	32w5d
4.60	17w5d	19w5d	21w0d	7.70	27w0d	29w5d	33w0d
4.70	18w0d	20w0d	21w2d	7.80	27w2d	30w0d	33w0d
4.80	18w2d	20w2d	21w2d	7.90	27w5d	30w2d	33w2d
4.90	18w5d	20w5d	21w5d	8.00	28w0d	30w5d	34w0d
5.00	19w0d	21w0d	22w0d	8.10	28w2d	31w0d	34w2d
5.10	19w2d	21w2d	22w2d	8.20	28w5d	31w2d	35w0d
5.20	19w5d	21w5d	22w5d	8.30	29w0d	32w0d	35w5d
5.30	20w0d	21w5d	23w0d	8.40	29w0d	32w2d	36w0d
5.40	20w2d	22w0d	23w5d	8.50	29w2d	33w0d	36w2d
5.50	20w5d	22w2d	24w0d	8.60	29w2d	33w2d	36w2d
5.60	21w0d	22w5d	24w0d	8.70	29w5d	34w0d	36w5d
5.70	21w2d	23w0d	24w2d	8.80	30w0d	34w2d	37w0d
5.80	21w2d	23w2d	24w5d	8.90	31w0d	35w2d	37w5d
5.90	21w5d	23w5d	25w0d	9.00	31w5d	35w5d	38w2d
6.00	21w5d	24w0d	25w2d	9.10	32w2d	36w2d	38w5d
6.10	22w0d	24w2d	25w5d	9.20	33w0d	36w2d	39w0d
6.20	22w2d	24w5d	26w0d	9.30	33w5d	36w5d	39w2d
6.30	22w5d	25w0d	26w2d	9.40	34w2d	37w0d	39w5d
6.40	23w2d	25w2d	26w5d	9.50	34w5d	37w2d	40w0d
6.50	23w5d	25w5d	27w2d				

1-1-46 Biparietal Diameter (BPD) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

BPD (cm	GA (w+d/d)		BPD (cm	GA (w+d/d)		BPD (cm	GA (w+d/d)	
	mean	±dec		mean	±dec		mean	±dec
1.30	10w1d	4d	4.00	18w1d	6d	6.70	26w6d	10d
1.40	10w3d	4d	4.10	18w3d	6d	6.80	27w2d	10d
1.50	10w5d	4d	4.20	18w5d	6d	6.90	27w4d	10d
1.60	11w0d	4d	4.30	19w0d	6d	7.00	28w0d	10d
1.70	11w2d	4d	4.40	19w2d	6d	7.10	28w3d	10d
1.80	11w4d	4d	4.50	19w4d	6d	7.20	28w5d	11d
1.90	11w6d	4d	4.60	20w0d	7d	7.30	29w1d	11d
2.00	12w1d	4d	4.70	20w2d	7d	7.40	29w4d	11d
2.10	12w3d	4d	4.80	20w4d	7d	7.50	30w0d	11d
2.20	12w6d	4d	4.90	20w6d	7d	7.60	30w3d	11d
2.30	13w1d	5d	5.00	21w1d	7d	7.70	30w6d	12d
2.40	13w3d	5d	5.10	21w3d	7d	7.80	31w2d	12d
2.50	13w5d	5d	5.20	21w6d	7d	7.90	31w5d	12d
2.60	14w0d	5d	5.30	22w1d	8d	8.00	32w1d	12d
2.70	14w2d	5d	5.40	22w3d	8d	8.10	32w5d	12d
2.80	14w4d	5d	5.50	22w5d	8d	8.20	33w1d	13d
2.90	14w6d	5d	5.60	23w1d	8d	8.30	33w5d	13d
3.00	15w1d	5d	5.70	23w3d	8d	8.40	34w2d	13d
3.10	15w3d	5d	5.80	23w5d	8d	8.50	34w6d	13d
3.20	15w5d	5d	5.90	24w1d	8d	8.60	35w3d	14d
3.30	16w0d	5d	6.00	24w3d	9d	8.70	36w0d	14d
3.40	16w2d	5d	6.10	24w5d	9d	8.80	36w5d	14d
3.50	16w4d	5d	6.20	25w1d	9d	8.90	37w4d	14d
3.60	16w6d	6d	6.30	25w3d	9d	9.00	38w3d	15d
3.70	17w1d	6d	6.40	25w5d	9d			
3.80	17w4d	6d	6.50	26w1d	9d			
3.90	17w6d	6d	6.60	26w3d	10d			

1-1-47 Biparietal Diameter (BPD) SIRIRAJ

Reference: Siwadune T, Sunsaneevithayakul P, Titapant V, Boriboonhirunsarn D, Kanokpongsakdi S. Charts of Thai fetal biometries: 2. Biparietal diameter. J Med Assoc Thai 2000; 83: 292-298.

$$GA = 8{,}251513 + 0{,}18069 \cdot BPD + 0{,}0017061 \cdot BPD^2$$

$$SD = 0{,}000418 \cdot HC^2 - 0{,}02619 \bullet HC + 0{,}851273$$

Input Unit: mm
Output Unit: w +d
Min Range: 20 mm
Max Range: 99 mm

BPD (mm)	GA mean (w+d)	GA ±1SD (d)	BPD (mm)	GA mean (w+d)	GA ±1SD (d)	BPD (mm)	GA mean (w+d)	GA ±1SD (d)
20	12w4d	3d	48	20w6d	3d	76	31w6d	8d
21	12w6d	3d	49	21w1d	4d	77	32w2d	9d
22	13w0d	3d	50	21w4d	4d	78	32w5d	9d
23	13w2d	3d	51	21w6d	4d	79	33w1d	9d
24	13w4d	3d	52	22w2d	4d	80	33w4d	10d
25	13w6d	3d	53	22w4d	4d	81	34w1d	10d
26	14w1d	3d	54	22w7d	4d	82	34w4d	10d
27	14w3d	3d	55	23w2d	4d	83	35w0d	10d
28	14w5d	3d	56	23w5d	4d	84	35w3d	11d
29	14w6d	3d	57	24w1d	5d	85	35w7d	11d
30	15w1d	3d	58	24w3d	5d	86	36w3d	11d
31	15w3d	3d	59	24w6d	5d	87	36w6d	12d
32	15w5d	3d	60	25w2d	5d	88	37w3d	12d
33	16w1d	3d	61	25w4d	5d	89	37w6d	12d
34	16w3d	3d	62	26w0d	5d	90	38w2d	13d
35	16w5d	3d	63	26w3d	6d	91	38w6d	13d
36	16w7d	3d	64	26w6d	6d	92	39w2d	13d
37	17w2d	3d	65	27w1d	6d	93	39w6d	14d
38	17w4d	3d	66	27w4d	6d	94	40w2d	14d
39	17w6d	3d	67	28w0d	6d	95	40w6d	14d
40	18w1d	3d	68	28w3d	7d	96	41w2d	15d
41	18w4d	3d	69	28w6d	7d	97	41w6d	15d
42	18w6d	3d	70	29w2d	7d	98	42w2d	16d
43	19w1d	3d	71	29w5d	7d	99	42w6d	16d
44	19w4d	3d	72	30w1d	7d			
45	19w6d	3d	73	30w4d	8d			
46	20w1d	3d	74	30w7d	8d			
47	20w4d	3d	75	31w3d	8d			

1-1-48 Biparietal Diameter (BPD) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

BPD (mm)	GA (d/d)		BPD (mm)	GA (d/d)	
	Mean	±1SD		Mean	±1SD
20	85	6	56	162	6
21	87	6	57	164	6
22	89	6	58	167	6
23	92	6	59	169	6
24	94	6	60	171	6
25	96	6	61	174	7
26	98	6	62	176	7
27	100	6	63	179	7
28	102	6	64	181	7
29	102	6	65	183	7
30	106	5	66	186	7
31	108	5	67	188	7
32	110	5	68	191	7
33	112	5	69	194	7
34	114	5	70	196	7
35	116	5	71	199	8
36	118	5	72	201	8
37	120	5	73	204	8
38	123	5	74	207	8
39	125	5	75	210	8
40	127	5	76	213	8
41	129	5	77	216	8
42	131	5	78	218	8
43	133	5	79	221	8
44	135	5	80	225	8
45	138	6	81	228	8
46	140	6	82	231	8
47	142	6	83	234	9
48	144	6	84	238	9
49	146	6	85	241	9
50	148	6	86	245	9
51	151	6	87	249	9
52	153	6	88	253	9
53	154	6	89	258	9
54	157	6	90	262	9
55	160	6			

1-1-49 Biparietal Diameter (BPD) VERBURG (outer-outer)

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: mm

Output Unit: weeks+days

Min Range: 10 mm

Max Range: 110 mm

BPD (mm)	GA (weeks+days)		
	5%	50%	95%
10	8+4	9+1	9+5
15	10+0	10+5	11+3
20	11+2	12+1	13+0
25	12+4	13+3	14+3
30	13+5	14+5	15+6
35	15+0	16+1	17+2
40	16+2	17+3	18+5
45	17+4	18+6	20+2
50	19+0	20+2	21+5
55	20+2	21+6	23+3
60	21+5	23+2	25+0
65	23+2	24+0	26+5
70	24+6	26+4	28+4
75	26+3	28+2	30+3
80	28+1	30+1	32+2
85	29+6	32+0	34+2
90	31+5	34+0	36+3
95	33+4	36+0	38+5
100	35+5	38+2	41+0
105	37+5	40+3	43+3
110	40+0	42+6	45+6

1-1-50 Clavicula (CLAV) YARKONI

Reference: *Yarkoni S., Schmidt W., Jeanty P., Reece A., Hobbins J.C.*
"Clavicular Measurement: A New Biometric Parameter for Fetal Evaluation"
Journal of Ultrasound in Medicine 4:467-470, September 1985.

$$GA = 3{,}717731 + 8{,}272778 \times Clav$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.10 cm
Max Range: 4.50 cm

Standard Deviation (±): 1SD = 2.684 weeks

Clav (cm)	GA (weeks+days)			Clav (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
1.10	8w3d	13w6d	17w2d	2.90	23w2d	28w5d	32w1d
1.20	9w1d	14w4d	18w1d	3.00	24w0d	29w4d	34w0d
1.30	10w0d	14w3d	19w6d	3.10	25w6d	29w2d	34w6d
1.40	11w6d	15w2d	20w5d	3.20	26w5d	30w1d	35w4d
1.50	12w5d	16w1d	21w4d	3.30	27w4d	31w0d	35w3d
1.60	12w3d	18w0d	21w3d	3.40	27w3d	32w6d	36w2d
1.70	13w2d	18w5d	22w2d	3.50	28w1d	33w5d	37w1d
1.80	14w1d	19w4d	23w0d	3.60	29w0d	33w3d	39w0d
1.90	16w0d	19w3d	24w6d	3.70	30w6d	34w2d	39w5d
2.00	16w6d	20w2d	25w5d	3.80	31w5d	35w1d	40w4d
2.10	17w4d	21w1d	26w4d	3.90	32w4d	37w0d	40w3d
2.20	17w3d	22w6d	26w2d	4.00	32w2d	37w6d	41w2d
2.30	18w2d	23w5d	27w1d	4.10	33w1d	38w4d	42w0d
2.40	19w1d	24w4d	28w0d	4.20	35w0d	38w3d	43w6d
2.50	21w0d	24w3d	29w6d	4.30	35w6d	39w2d	44w5d
2.60	21w5d	25w1d	30w5d	4.40	36w5d	40w1d	45w4d
2.70	22w4d	26w0d	30w3d	4.50	36w3d	41w6d	45w3d
2.80	22w3d	27w6d	31w2d				

1-1-51 Crown-Rump Length (CRL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

Input Unit: cm
Output Unit: weeks + days
Min Range: 0.1 cm
Max Range: 8.7 cm

CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)
0.1	5w2d	2.0	8w3d	5.2	11w4d
0.2	5w3d	2.1	8w4d	5.5	11w5d
0.3	5w4d	2.2	8w5d	5.6	11w6d
0.3	5w5d	2.2	8w6d	5.7	12w0d
0.4	5w6d	2.3	9w0d	5.8	12w1d
0.4	6w0d	2.4	9w1d	6.0	12w2d
0.5	6w1d	2.6	9w2d	6.1	12w3d
0.6	6w2d	2.7	9w3d	6.3	12w4d
0.7	6w3d	2.8	9w4d	6.4	12w5d
0.8	6w4d	2.9	9w5d	6.5	12w6d
0.9	6w5d	3.1	9w6d	6.8	13w0d
1.0	6w6d	3.4	10w0d	7.0	13w1d
1.1	7w0d	3.6	10w1d	7.2	13w2d
1.1	7w1d	3.7	10w2d	7.4	13w3d
1.2	7w2d	3.8	10w3d	7.6	13w4d
1.2	7w3d	3.9	10w4d	7.7	13w5d
1.3	7w4d	3.9	10w5d	8.0	13w6d
1.4	7w5d	4.0	10w6d	8.1	14w0d
1.5	7w6d	4.4	11w0d	8.4	14w1d
1.7	8w0d	4.5	11w1d	8.5	14w2d
1.8	8w1d	4.7	11w2d	8.6	14w3d
1.9	8w2d	4.8	11w3d	8.7	14w4d

1-1-52 Crown-Rump Length (CRL) ASUM - OLD

Reference: *http://www.asum.com.au/open/home.htm*
Date: December 2003

Input Unit: cm
Output Unit: weeks + days
Min Range: 2 mm
Max Range: 82 mm

CRL (mm)	GA (w+d)	CRL (mm)	GA (w+d)	CRL (mm)	GA (w+d)
2	6+0	25	9+1	58	12+2
3	6+1	26	9+2	60	12+3
4	6+2	27	9+3	62	12+4
5	6+3	29	9+4	64	12+5
6	6+4	30	9+5	66	12+6
7	6+5	31	9+6	68	13+0
8	6+6	33	10+0	70	13+1
9	7+0	34	10+1	72	13+2
10	7+1	36	10+2	74	13+3
11	7+2	37	10+3	76	13+4
12	7+3	38	10+4	78	13+5
13	7+4	40	10+5	80	13+6
14	7+5	41	10+6	82	14+0
15	7+6	43	11+0		
16	8+0	45	11+1		
17	8+1	46	11+2		
18	8+2	48	11+3		
19	8+3	50	11+4		
20	8+4	51	11+5		
22	8+5	53	11+6		
23	8+6	55	11+0		
24	9+0	57	12+1		

1-1-53 Crown-Rump Length (CRL) DAYA

Reference: Daya S.; „Accuracy of gestational age estimation by means of fetal crown-rump length measurement“ Am J Obstet Gynecol; March 1993; pages 903-908

CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
0.20	5w3d	6w1d	6w6d	2.90	9w0d	9w5d	10w3d	5.60	11w4d	12w1d	12w6d
0.30	5w4d	6w2d	6w6d	3.00	9w1d	9w6d	10w4d	5.70	11w4d	12w1d	12w6d
0.40	5w5d	6w3d	7w1d	3.10	9w2d	10w0d	10w4d	5.80	11w4d	12w2d	13w0d
0.50	5w6d	6w4d	7w2d	3.20	9w3d	10w1d	10w6d	5.90	11w4d	12w3d	13w1d
0.60	6w0d	6w5d	7w3d	3.30	9w4d	10w1d	10w6d	6.00	11w5d	12w3d	13w1d
0.70	6w1d	6w6d	7w4d	3.40	9w4d	10w2d	11w0d	6.10	11w6d	12w4d	13w1d
0.80	6w2d	7w0d	7w5d	3.50	9w5d	10w3d	11w1d	6.20	11w6d	12w4d	13w2d
0.90	6w4d	7w1d	7w6d	3.60	9w6d	10w4d	11w1d	6.30	11w6d	12w4d	13w2d
1.00	6w4d	7w2d	8w0d	3.70	9w6d	10w4d	11w2d	6.40	11w6d	12w5d	13w3d
1.10	6w6d	7w3d	8w1d	3.80	10w0d	10w5d	11w3d	6.50	12w0d	12w5d	13w3d
1.20	6w6d	7w4d	8w2d	3.90	10w1d	10w6d	11w4d	6.60	12w0d	12w6d	13w4d
1.30	7w0d	7w5d	8w3d	4.00	10w1d	10w6d	11w4d	6.70	12w1d	12w6d	13w4d
1.40	7w1d	7w6d	8w4d	4.10	10w2d	11w0d	11w5d	6.80	12w1d	12w6d	13w4d
1.50	7w2d	8w0d	8w5d	4.20	10w3d	11w1d	11w6d	6.90	12w1d	12w6d	13w4d
1.60	7w3d	8w1d	8w6d	4.30	10w4d	11w1d	11w6d	7.00	12w1d	13w0d	13w5d
1.70	7w4d	8w2d	9w0d	4.40	10w4d	11w1d	11w6d	7.10	12w2d	13w0d	13w5d
1.80	7w5d	8w3d	9w1d	4.50	10w4d	11w2d	12w0d	7.20	12w2d	13w1d	13w6d
1.90	7w6d	8w4d	9w1d	4.60	10w5d	11w3d	12w1d	7.30	12w2d	13w1d	13w6d
2.00	8w0d	8w5d	9w2d	4.70	10w6d	11w4d	12w1d	7.40	12w3d	13w1d	13w6d
2.10	8w1d	8w6d	9w4d	4.80	10w6d	11w4d	12w2d	7.50	12w3d	13w1d	13w6d
2.20	8w1d	8w6d	9w4d	4.90	11w0d	11w5d	12w3d	7.60	12w3d	13w1d	13w6d
2.30	8w2d	9w0d	9w5d	5.00	11w0d	11w5d	12w3d	7.70	12w4d	13w1d	14w0d
2.40	8w4d	9w1d	9w6d	5.10	11w1d	11w6d	12w4d	7.80	12w4d	13w2d	14w0d
2.50	8w4d	9w2d	10w0d	5.20	11w1d	11w6d	12w4d	7.90	12w4d	13w2d	14w0d
2.60	8w5d	9w3d	10w1d	5.30	11w1d	12w0d	12w5d	8.00	12w4d	13w2d	14w0d
2.70	8w6d	9w4d	10w1d	5.40	11w2d	12w0d	12w5d				
2.80	8w6d	9w4d	10w2d	5.50	11w3d	12w1d	12w6d				

1-1-54 Crown-Rump Length (CRL) Eik-Nes

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: mm

Output Unit: w (weeks) + d (days)

Min Range: 8 mm

Max Range: 84 mm

CRL (mm)	GA (weeks+days)	CRL (mm)	GA (weeks+days)
8	7w+5d	47	11w+3d
9	7w+6d	48	11w+3d
10	7w+6d	49	11w+4d
11	8w+0d	50	11w+4d
12	8w+1d	51	11w+5d
13	8w+2d	52	11w+6d
14	8w+3d	53	11w+6d
15	8w+3d	54	12w+0d
16	8w+4d	55	12w+0d
17	8w+5d	56	12w+1d
18	8w+5d	57	12w+1d
19	8w+6d	58	12w+2d
20	9w+0d	59	12w+2d
21	9w+0d	60	12w+3d
22	9w+1d	61	12w+3d
23	9w+2d	62	12w+4d
24	9w+2d	63	12w+4d
25	9w+3d	64	12w+5d
26	9w+4d	65	12w+6d
27	9w+4d	66	12w+6d
28	9w+5d	67	13w+0d
29	9w+6d	68	13w+0d
30	9w+6d	69	13w+1d
31	10w+0d	70	13w+1d
32	10w+1d	71	13w+2d
33	10w+1d	72	13w+2d
34	10w+2d	73	13w+3d
35	10w+3d	74	13w+3d
36	10w+3d	75	13w+4d
37	10w+4d	76	13w+4d
38	10w+4d	77	13w+5d
39	10w+5d	78	13w+5d
40	10w+6d	79	13w+6d
41	10w+6d	80	13w+6d
42	11w+0d	81	14w+0d
43	11w+0d	82	14w+0d
44	11w+1d	83	14w+1d
45	11w+2d	84	14w+1d
46	11w+2d		

1-1-55 Crown-Rump Length (CRL) HADLOCK

Reference: Hadlock F., Shah Y.P, Kanon D.J., Math B., Lindsey J.V., "Fetal Crown-Rump Length: Reevaluation of Relation to Menstrual Age (5-18 weeks) with High-Resolution Real-Time Ultrasound." Radiology, 182:501-505, 1992.

$$GA = e^{1,684969 + 0,315646 \times CRL - 0,49306 \times CRL^2 + 0,004057 \times CRL^3 - 0,000120456 \times CRL^4}$$

CRL (cm)	GA (weeks+days 5%	50%	95%	CRL (cm)	GA (weeks+days 5%	50%	95%	CRL (cm)	GA (weeks+days 5%	50%	95%	CRL (cm)	GA (weeks+days 5%	50%	95%
0.20	5w1d	5w5d	6w1d	3.20	9w2d	10w1d	10w6d	6.20	11w3d	12w4d	13w4d	9.20	13w6d	15w1d	16w2d
0.30	5w2d	5w6d	6w2d	3.30	9w2d	10w1d	10w6d	6.30	11w4d	12w5d	13w5d	9.30	13w6d	15w1d	16w2d
0.40	5w4d	6w1d	6w4d	3.40	9w3d	10w2d	11w0d	6.40	11w5d	12w6d	13w6d	9.40	14w0d	15w2d	16w3d
0.50	5w4d	6w1d	6w4d	3.50	9w4d	10w3d	11w1d	6.50	11w5d	12w6d	13w6d	9.50	14w0d	15w2d	16w3d
0.60	5w6d	6w3d	6w6d	3.60	9w5d	10w4d	11w2d	6.60	11w5d	12w6d	13w6d	9.60	14w1d	15w3d	16w4d
0.70	6w0d	6w4d	7w0d	3.70	9w5d	10w4d	11w2d	6.70	11w6d	13w0d	14w0d	9.70	14w2d	15w4d	16w5d
0.80	6w1d	6w5d	7w1d	3.80	9w6d	10w5d	11w4d	6.80	12w0d	13w1d	14w1d	9.80	14w2d	15w4d	16w5d
0.90	6w2d	6w6d	7w2d	3.90	9w6d	10w6d	11w5d	6.90	12w0d	13w1d	14w1d	9.90	14w3d	15w5d	16w6d
1.00	6w4d	7w1d	7w5d	4.00	9w6d	10w6d	11w5d	7.00	12w0d	13w1d	14w1d	10.00	14w4d	15w6d	17w0d
1.10	6w4d	7w1d	7w5d	4.10	10w0d	11w0d	11w6d	7.10	12w1d	13w2d	14w2d	10.10	14w5d	16w0d	17w1d
1.20	6w5d	7w3d	8w0d	4.20	10w1d	11w1d	12w0d	7.20	12w2d	13w3d	14w3d	10.20	14w5d	16w1d	17w3d
1.30	6w6d	7w4d	8w1d	4.30	10w1d	11w1d	12w0d	7.30	12w2d	13w3d	14w3d	10.30	14w5d	16w1d	17w3d
1.40	7w0d	7w5d	8w2d	4.40	10w1d	11w1d	12w0d	7.40	12w3d	13w4d	14w4d	10.40	14w6d	16w2d	17w4d
1.50	7w1d	7w6d	8w3d	4.50	10w2d	11w2d	12w1d	7.50	12w3d	13w4d	14w4d	10.50	15w0d	16w3d	17w5d
1.60	7w2d	8w0d	8w4d	4.60	10w3d	11w3d	12w2d	7.60	12w4d	13w5d	14w5d	10.60	15w1d	16w4d	17w6d
1.70	7w3d	8w1d	8w5d	4.70	10w4d	11w4d	12w3d	7.70	12w5d	13w6d	14w6d	10.70	15w1d	16w4d	17w6d
1.80	7w4d	8w2d	8w6d	4.80	10w4d	11w4d	12w3d	7.80	12w5d	13w6d	14w6d	10.80	15w2d	16w5d	18w0d
1.90	7w5d	8w3d	9w0d	4.90	10w5d	11w5d	12w4d	7.90	12w5d	13w6d	14w6d	10.90	15w3d	16w6d	18w1d
2.00	7w6d	8w4d	9w1d	5.00	10w5d	11w5d	12w4d	8.00	12w6d	14w0d	15w0d	11.00	15w3d	16w6d	18w1d
2.10	8w0d	8w5d	9w2d	5.10	10w6d	11w6d	12w5d	8.10	13w0d	14w1d	15w1d	11.10	15w4d	17w0d	18w2d
2.20	8w1d	8w6d	9w3d	5.20	10w6d	11w6d	12w5d	8.20	13w0d	14w1d	15w1d	11.20	15w5d	17w1d	18w3d
2.30	8w1d	9w0d	9w5d	5.30	11w0d	12w0d	12w6d	8.30	13w0d	14w1d	15w1d	11.30	15w5d	17w1d	18w3d
2.40	8w2d	9w1d	9w6d	5.40	11w0d	12w0d	12w6d	8.40	13w1d	14w2d	15w3d	11.40	15w6d	17w2d	18w4d
2.50	8w2d	9w1d	9w6d	5.50	11w1d	12w1d	13w0d	8.50	13w1d	14w3d	15w4d	11.50	16w0d	17w3d	18w5d
2.60	8w4d	9w3d	10w1d	5.60	11w1d	12w1d	13w0d	8.60	13w2d	14w4d	15w5d	11.60	16w1d	17w4d	18w6d
2.70	8w5d	9w4d	10w2d	5.70	11w2d	12w2d	13w1d	8.70	13w2d	14w4d	15w5d	11.70	16w1d	17w4d	18w6d
2.80	8w5d	9w4d	10w2d	5.80	11w2d	12w2d	13w1d	8.80	13w3d	14w5d	15w6d	11.80	16w2d	17w5d	19w0d
2.90	8w6d	9w5d	10w3d	5.90	11w3d	12w3d	13w2d	8.90	13w4d	14w6d	16w0d	11.90	16w3d	17w6d	19w2d
3.00	9w0d	9w6d	10w4d	6.00	11w3d	12w4d	13w4d	9.00	13w4d	14w6d	16w0d	12.00	16w3d	17w6d	19w2d
3.10	9w1d	10w0d	10w5d	6.10	11w3d	12w4d	13w4d	9.10	13w5d	15w0d	16w1d	12.10	16w3d	18w0d	19w3d

1-1-56 Crown-Rump Length (CRL) HANSMANN

Reference: Hansmann, U.Voigt; H.Schumacher; P.Jeanty "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986, p.439.

CRL (cm)	GA (weeks+days			CRL (cm)	GA (weeks+days		
	-2SD	Mean	+2SD		-2SD	Mean	+2SD
0.60	5w1d	6w1d	7w0d	5.20	11w0d	12w2d	13w4d
0.70	5w3d	6w2d	7w2d	5.40	11w0d	12w3d	13w5d
0.80	5w4d	6w4d	7w3d	5.60	11w1d	12w4d	13w6d
0.90	5w6d	6w6d	7w6d	5.80	11w2d	12w5d	14w0d
1.00	6w1d	7w0d	8w0d	6.00	11w3d	12w6d	14w1d
1.10	6w2d	7w2d	8w1d	6.30	11w4d	13w0d	14w3d
1.20	6w3d	7w3d	8w3d	6.60	11w5d	13w2d	14w5d
1.30	6w5d	7w4d	8w4d	7.00	12w0d	13w3d	15w0d
1.40	6w6d	7w6d	8w6d	7.30	12w1d	13w5d	15w1d
1.50	7w0d	8w0d	9w0d	7.60	12w2d	13w6d	15w3d
1.60	7w2d	8w2d	9w1d	8.00	12w4d	14w1d	15w5d
1.70	7w3d	8w3d	9w2d	8.30	12w5d	14w2d	16w0d
1.80	7w4d	8w4d	9w4d	8.60	12w6d	14w4d	16w2d
1.90	7w5d	8w5d	9w5d	9.00	13w1d	14w6d	16w4d
2.00	7w6d	8w6d	9w6d	9.30	13w3d	15w1d	16w6d
2.10	8w0d	9w0d	10w0d	9.60	13w4d	15w3d	17w1d
2.20	8w1d	9w1d	10w1d	10.00	13w6d	15w5d	17w3d
2.30	8w2d	9w2d	10w2d	10.30	14w1d	16w0d	17w6d
2.40	8w3d	9w3d	10w3d	10.60	14w3d	16w2d	18w1d
2.60	8w5d	9w5d	10w5d	11.00	14w5d	16w4d	18w4d
2.80	8w6d	10w0d	11w1d	11.30	15w0d	17w0d	19w0d
3.00	9w1d	10w2d	11w2d	11.60	15w2d	17w2d	19w2d
3.20	9w2d	10w3d	11w4d	12.00	15w4d	17w4d	19w4d
3.40	9w4d	10w5d	11w5d	12.30	16w0d	18w0d	20w0d
3.60	9w5d	10w6d	12w0d	12.60	16w2d	18w2d	20w3d
3.80	9w6d	11w1d	12w2d	13.00	16w5d	18w6d	20w6d
4.00	10w1d	11w2d	12w3d	13.30	17w0d	19w1d	21w2d
4.20	10w2d	11w3d	12w4d	13.60	17w3d	19w4d	21w6d
4.40	10w3d	11w4d	12w6d	14.00	17w6d	20w0d	22w2d
4.60	10w5d	11w6d	13w0d	14.30	18w1d	20w3d	22w5d
4.80	10w6d	12w0d	13w2d	14.60	18w4d	20w6d	23w1d
5.00	10w6d	12w1d	13w3d	15.00	19w0d	21w3d	23w5d

1-1-57 Crown-Rump Length (CRL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

CRL (cm)	GA (weeks+days		
	10%	50%	90%
1.30	7w3d	8w0d	9w0d
1.40	7w4d	8w1d	9w1d
1.50	7w5d	8w2d	9w1d
1.60	7w6d	8w3d	9w2d
1.70	8w0d	8w4d	9w3d
1.80	8w1d	8w5d	9w4d
1.90	8w2d	8w6d	9w5d
2.00	8w3d	9w0d	9w6d
2.10	8w4d	9w1d	10w0d
2.20	8w4d	9w2d	10w1d
2.30	8w5d	9w2d	10w1d
2.40	8w6d	9w3d	10w2d
2.50	9w0d	9w4d	10w3d
2.60	9w1d	9w5d	10w4d
2.70	9w2d	9w6d	10w5d
2.80	9w2d	10w0d	10w5d
2.90	9w3d	10w0d	10w6d
3.00	9w4d	10w1d	11w0d
3.10	9w5d	10w2d	11w0d
3.20	9w6d	10w3d	11w1d
3.30	9w6d	10w3d	11w2d
3.40	10w0d	10w4d	11w2d
3.50	10w1d	10w5d	11w3d
3.60	10w1d	10w5d	11w3d
3.70	10w2d	10w6d	11w4d
3.80	10w3d	11w0d	11w5d
3.90	10w3d	11w0d	11w5d
4.00	10w4d	11w1d	11w6d
4.10	10w5d	11w2d	11w6d
4.20	10w5d	11w2d	12w0d
4.30	10w6d	11w3d	12w0d

1-1-58 Crown-Rump Length (CRL) McLENNAN

Reference: *Construction of modern Australian first trimester ultrasound dating and growth charts*
Journal of Medical Imaging and Radiation Oncology (2008) 52, 471–479

Input Unit: mm
Output Unit: d (days)
Min Range: 1 mm
Max Range: 82 mm

CRL (mm)	GA (d)			CRL (mm)	GA (d)			CRL (mm)	GA (d)		
	5%	50%	90%		5%	50%	90%		5%	50%	90%
1	33	35	37	29	64	67	68	57	82	85	88
2	35	37	39	30	65	68	69	58	82	85	88
3	37	39	41	31	65	69	70	59	83	86	89
4	39	41	43	32	66	70	70	60	83	86	89
5	40	42	44	33	67	70	71	61	83	87	90
6	42	44	46	34	68	71	72	62	84	87	91
7	43	45	47	35	68	72	73	63	84	88	91
8	45	47	49	36	69	73	73	64	85	88	92
9	46	48	50	37	70	73	74	65	85	89	92
10	47	49	51	38	70	74	75	66	85	89	93
11	48	50	52	39	71	75	76	67	86	89	93
12	49	52	54	40	72	75	76	68	86	90	94
13	51	53	55	41	72	76	77	69	86	90	94
14	52	54	56	42	73	77	78	70	87	91	95
15	53	55	57	43	73	77	78	71	87	91	95
16	54	56	58	44	74	78	79	72	87	91	95
17	55	57	59	45	75	78	80	73	88	92	96
18	56	58	60	46	75	79	80	74	88	92	96
19	57	59	61	47	76	79	81	75	88	93	97
20	58	60	62	48	76	80	81	76	89	93	97
21	59	61	63	49	77	81	82	77	89	93	98
22	60	62	64	50	77	81	83	78	89	94	98
23	60	63	65	51	78	82	83	79	89	94	99
24	61	63	66	52	78	82	84	80	90	94	99
25	62	64	66	53	79	83	84	81	90	95	100
26	63	65	67	54	79	83	85	82	90	95	100
27	33	66	37	55	80	84	86				
28	35	67	39	56	80	84	86				

1-1-59 Crown-Rump Length (CRL) NELSON

Reference: *Nelson L.H.,*
"Comparison of Methods for Determining Crown-Rump Measurement by Real-Time Ultrasound" Journal of clinical ultrasound 9: 67-70; February 1981

$$GA = \frac{51{,}008 + 6 \times CRL}{7}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.0 cm
Max Range: 8.0 cm

CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)
1.00	8w1d	4.60	11w1d
1.20	8w2d	4.80	11w3d
1.40	8w4d	5.00	11w4d
1.60	8w4d	5.20	11w5d
1.80	8w6d	5.40	11w6d
2.00	9w0d	5.60	12w1d
2.20	9w1d	5.80	12w2d
2.40	9w2d	6.00	12w3d
2.60	9w4d	6.20	12w4d
2.80	9w5d	6.40	12w6d
3.00	9w6d	6.60	12w6d
3.20	10w0d	6.80	13w1d
3.40	10w1d	7.00	13w2d
3.60	10w3d	7.20	13w4d
3.80	10w4d	7.40	13w4d
4.00	10w5d	7.60	13w6d
4.20	10w6d	7.80	14w0d
4.40	11w0d	8.00	14w1d

1-1-60 Crown-Rump Length (CRL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)
0.87	7w0d	3.00	10w0d
0.91	7w1d	3.15	10w1d
0.96	7w2d	3.31	10w2d
1.02	7w3d	3.47	10w3d
1.08	7w4d	3.63	10w4d
1.15	7w5d	3.79	10w5d
1.22	7w6d	3.95	10w6d
1.30	8w0d	4.12	11w0d
1.39	8w1d	4.28	11w1d
1.49	8w2d	4.45	11w2d
1.59	8w3d	4.62	11w3d
1.69	8w4d	4.79	11w4d
1.80	8w5d	4.96	11w5d
1.92	8w6d	5.13	11w6d
2.04	9w0d	5.30	12w0d
2.16	9w1d	5.48	12w1d
2.29	9w2d	5.65	12w2d
2.43	9w3d	5.82	12w3d
2.57	9w4d	5.99	12w4d
2.71	9w5d	6.16	12w5d
2.85	9w6d	6.32	12w6d

1-1-61 Crown-Rump Length (CRL) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: CRL and GA Values are taken from Fetal Growth Table; CRL values are used as Input and GA as Output!

CRL (mm)	GA (d)	CRL (mm)	GA (d)
7.0	44	35.0	72
7.5	45	36.5	73
8.0	46	38.0	74
8.5	47	39.5	75
9.0	48	41.0	76
9.5	49	42.5	77
10.0	50	44.0	78
11.0	51	45.5	79
12.0	52	47.0	80
13.0	53	48.0	81
14.0	54	49.0	82
15.0	55	50.5	83
16.0	56	52.0	84
17.0	57	54.0	85
18.0	58	56.0	86
19.0	59	58.0	87
20.0	60	60.0	88
21.0	61	62.0	89
22.0	62	64.0	90
23.0	63	66.0	91
24.0	64	68.0	92
25.0	65	70.0	93
27.0	66	72.0	94
28.0	67	74.0	95
29.0	68	76.0	96
30.5	69	78.0	97
32.0	70	80.0	98
33.5	71	83.0	99

1-1-62 Crown-Rump Length (CRL) REMPEN

Reference: Rempen A., Chaoui R., Kozlowski P., Terinde R., Wisser J. M.Häusler: "Standards zur Ultraschalluntersuchung in der Frühschwangerschaft" publiziert in: Der Frauenarzzt 42 (2001),327 ff.

CRL (cm)	GA (weeks+days)			CRL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
0.10	-	-	-	3.10	8w6d	9w5d	10w3d
0.20	5w2d	6w0d	6w4d	3.20	9w0d	9w6d	10w4d
0.30	5w4d	6w1d	6w5d	3.30	9w1d	9w6d	10w5d
0.40	5w5d	6w2d	7w0d	3.40	9w1d	10w0d	10w6d
0.50	5w6d	6w3d	7w1d	3.50	9w2d	10w1d	11w0d
0.60	6w0d	6w4d	7w2d	3.60	9w3d	10w2d	11w0d
0.70	6w1d	6w5d	7w3d	3.70	9w4d	10w2d	11w1d
0.80	6w2d	6w6d	7w4d	3.80	9w4d	10w3d	11w2d
0.90	6w3d	7w0d	7w5d	3.90	9w5d	10w4d	11w3d
1.00	6w4d	7w1d	7w6d	4.00	9w6d	10w5d	11w4d
1.10	6w4d	7w2d	8w0d	4.10	10w0d	10w5d	11w4d
1.20	6w5d	7w3d	8w1d	4.20	10w0d	10w6d	11w5d
1.30	6w6d	7w4d	8w2d	4.30	10w1d	11w0d	11w6d
1.40	7w0d	7w5d	8w3d	4.40	10w2d	11w1d	12w0d
1.50	7w1d	7w6d	8w4d	4.50	10w2d	11w1d	12w0d
1.60	7w2d	8w0d	8w5d	4.60	10w3d	11w2d	12w1d
1.70	7w3d	8w0d	8w6d	4.70	10w4d	11w3d	12w2d
1.80	7w3d	8w1d	9w0d	4.80	10w5d	11w4d	12w3d
1.90	7w4d	8w2d	9w0d	4.90	10w5d	11w4d	12w3d
2.00	7w5d	8w3d	9w1d	5.00	10w6d	11w5d	12w4d
2.10	7w6d	8w4d	9w2d	5.10	11w0d	11w6d	12w5d
2.20	7w6d	8w5d	9w3d	5.20	11w0d	11w6d	12w6d
2.30	8w0d	8w5d	9w4d	5.30	11w1d	12w0d	12w6d
2.40	8w1d	8w6d	9w5d	5.40	11w2d	12w1d	13w0d
2.50	8w2d	9w0d	9w6d	5.50	11w2d	12w2d	13w1d
2.60	8w3d	9w1d	9w6d	5.60	11w3d	12w2d	13w2d
2.70	8w3d	9w2d	10w0d	5.70	11w4d	12w3d	13w3d
2.80	8w4d	9w2d	10w1d	5.80	11w5d	12w4d	13w3d
2.90	8w5d	9w3d	10w2d	5.90	11w5d	12w5d	13w4d
3.00	8w6d	9w4d	10w3d	6.00	11w6d	12w5d	13w5d

1-1-63 Crown-Rump Length (CRL) ROBINSON

Reference: Robinson H.P., Fleming J.E.E.,
"A critical evaluation of Sonar "Crown-Rump Length" measurements"
British Journal of Obstetrics and Gynecology; Volume 82:702-710, September 1975

$$GA = \frac{8{,}052 \times \sqrt{10 \times CRL} + 23{,}73}{7}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 0.6 cm
Max Range: 8.5 cm

1-1-64 Crown-Rump Length (CRL) ROBINSON BMUS

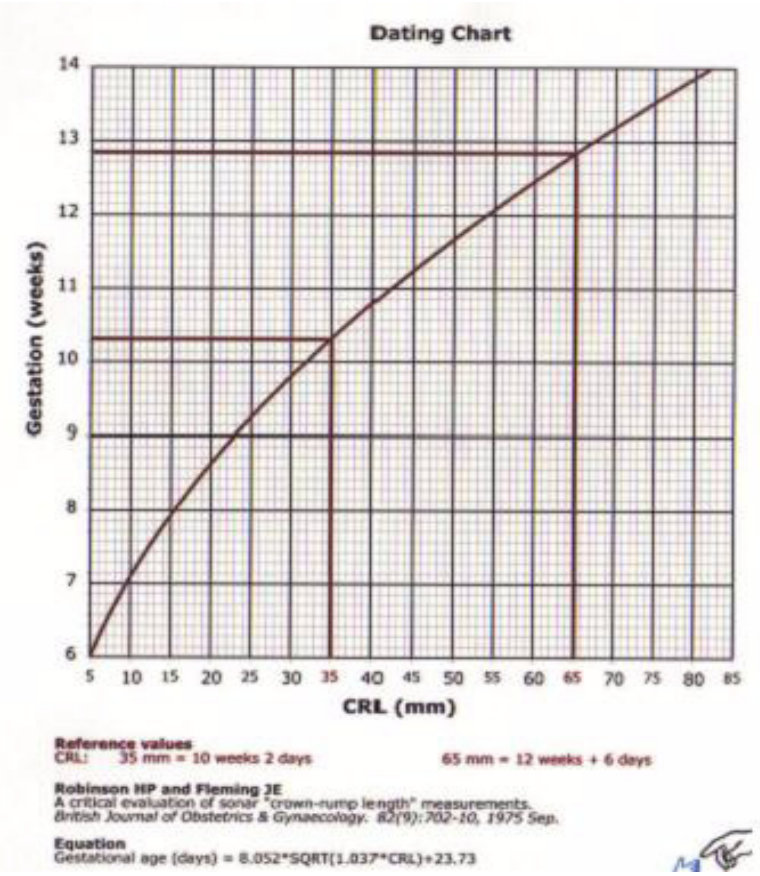
Reference: Robinson H.P., Fleming J.E.E.,
"A critical evaluation of Sonar "Crown-Rump Length" measurements"
British Journal of Obstetrics and Gynecology; Volume 82:702-710, September 1975

$$GA = \frac{8{,}052 \times \sqrt{1{,}037 \times CRL} + 23{,}73}{7}$$

Input Unit: mm
Output Unit: w (weeks)+d(days)
Min Range: 4 mm
Max Range: 84 mm

Dating Table (CRL in mm)					
CRL	**weeks**	**CRL**	**weeks**	**CRL**	**weeks**
4	5+5	31	9+6	58	12+2
5	6+0	32	10+0	59	12+3
6	6+2	33	10+1	60	12+3
7	6+3	34	10+2	61	12+4
8	6+5	35	10+2	62	12+4
9	6+6	36	10+3	63	12+5
10	7+1	37	10+4	64	12+5
11	7+2	38	10+4	65	12+6
12	7+3	39	10+5	66	12+6
13	7+4	40	10+6	67	13+0
14	7+5	41	10+6	68	13+0
15	7+6	42	11+0	69	13+1
16	8+1	43	11+0	70	13+1
17	8+2	44	11+1	71	13+2

Dating Table (CRL in mm)					
CRL	**weeks**	**CRL**	**weeks**	**CRL**	**weeks**
18	8+3	45	11+2	72	13+2
19	8+3	46	11+2	73	13+3
20	8+4	47	11+3	74	13+3
21	8+5	48	11+4	75	13+4
22	8+6	49	11+4	76	13+4
23	9+0	50	11+5	77	13+5
24	9+1	51	11+5	78	13+5
25	9+2	52	11+6	79	13+6
26	9+3	53	11+6	80	13+6
27	9+3	54	12+0	81	14+0
28	9+4	55	12+1	82	14+0
29	9+5	56	12+1	83	14+0
30	9+6	57	12+2	84	14+1



1-1-65 Crown-Rump Length (CRL) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

CRL (cm)	GA (w+d/d)	
	mean	±dec
0.50	6w3d	3d
1.00	7w3d	4d
1.50	8w1d	5d
2.00	8w6d	6d
2.50	9w4d	6d
3.00	10w2d	7d
3.50	10w6d	8d
4.00	11w3d	8d
4.50	11w6d	9d
5.00	12w2d	10d

1-1-66 Crown-Rump Length (CRL) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

CRL (mm)	GA (d/d)		CRL (mm)	GA (d/d)	
	mean	±1SD		mean	±1SD
13	55	8	32	73	7
14	56	9	33	74	7
15	57	10	34	74	7
16	58	8	35	75	7
17	59	9	36	76	7
18	60	10	37	77	7
19	61	8	38	78	7
20	62	9	39	78	7
21	63	7	40	79	7
22	64	7	41	80	7
23	65	7	42	81	7
24	66	7	43	81	7
25	67	7	44	82	7
26	68	7	45	83	7
27	68	7	46	84	7
28	69	7	47	84	7
29	70	7	48	85	7
30	71	7	49	86	7
31	72	7	50	86	7

1-1-67 Crown-Rump Length (CRL) VERBURG

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: mm

Output Unit: w +d (weeks+days)

Min Range: 5 mm

Max Range: 100 mm

CRL (mm)	GA (weeks+days)		
	5%	50%	95%
5	5+6	6+2	6+6
10	7+0	7+4	8+1
15	7+5	8+2	9+0
20	8+2	9+0	9+5
25	8+6	9+4	10+2
30	9+2	10+0	10+6
35	9+5	10+3	11+2
40	10+1	10+6	11+5
45	10+3	11+2	12+1
50	10+6	11+5	12+4
55	11+1	12+0	13+0
60	11+3	12+3	13+3
65	11+6	12+5	13+5
70	12+1	13+0	14+0
75	12+3	13+3	14+3
80	12+5	13+5	14+5
85	13+0	14+0	15+1
90	13+2	14+2	15+3
95	13+4	14+4	15+5
100	13+6	15+0	16+1

1-1-68 Femur Length (FL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

FL (cm)	GA		FL (cm)	GA	
	w	± d		w	± d
0.8	11	7	5.0	27	14
1.0	12	7	5.4	28	14
1.1	13	7	5.5	29	18
1.5	14	7	5.8	30	18
1.7	15	7	5.9	31	18
2.2	16	7	6.2	32	21
2.5	17	7	6.5	33	21
2.8	18	10	6.6	34	21
3.0	19	10	6.7	35	21
3.2	20	10	6.9	36	21
3.4	21	14	7.2	37	21
3.7	22	14	7.3	38	21
4.3	23	14	7.5	39	21
4.5	24	14	7.6	40	21
4.8	25	14	7.7	41	21
4.9	26	14			

1-1-69 Femur Length (FL) ASUM - OLD

Input Unit: cm
Output Unit: Week
Min Range: 10 mm
Max Range: 79 mm

FL (mm)	GA (w)	FL (mm)	GA (w)	FL (mm)	GA (w)
10	12.8	34	20.3	58	30.0
11	13.1	35	20.7	59	30.5
12	13.4	36	21.0	60	30.9
13	13.6	37	21.4	61	31.4
14	13.9	38	21.8	62	31.9
15	14.2	39	22.1	63	32.3
16	14.5	40	22.5	64	32.8
17	14.8	41	22.9	65	33.3
18	15.1	42	23.3	66	33.8
19	15.4	43	23.7	67	34.2
20	15.7	44	24.1	68	34.7
21	16.0	45	24.5	69	35.2
22	16.3	46	24.9	70	35.7
23	16.6	47	25.3	71	36.2
24	16.9	48	25.7	72	36.7
25	17.2	49	26.1	73	37.2
26	17.6	50	26.5	74	37.7
27	17.9	51	27.0	75	38.3
28	18.2	52	27.4	76	38.8
29	18.6	53	27.8	77	39.3
30	18.9	54	28.2	78	39.8
31	19.2	55	28.7	79	40.4
32	19.6	56	29.1		
33	19.9	57	29.6		

The regression equation for this data is:
menstrual age = 10.38 + 0.2256 (femur length) + 0.001948 (femur length)$_{2.}$
The calculated variability (±2 SD) in predicting menstrual age from femur length is ±9.5 days (12-23 weeks) and ±22 days (23-40 weeks)

1-1-70 Femur Length (FL) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol.Obstet Fértil., Vol. 28 No. 2, 2000, pages 435-445

NOTE: FL and GA Values are taken from Fetal Growth Table; FL (50% values) are used as Input and GA as Output!

FL (mm)	GA (Week)
6.33	12
9.88	13
13.33	14
16.66	15
19.95	16
23.12	17
26.23	18
29.25	19
32.23	20
35.05	21
37.87	22
40.50	23
43.16	24
45.69	25
48.17	26
50.53	27
52.80	28
54.94	29
57.13	30
59.15	31
61.11	32
63.00	33
64.76	34
66.47	35
68.13	36
69.63	37
71.11	38
72.48	39
73.79	40
74.00	41

1-1-71 Femur Length (FL) CHITTY

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

FL (cm)	GA (weeks+days)			FLL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
1.00	12w1d	13w0d	13w6d	3.90	20w5d	22w4d	24w3d
1.10	12w3d	13w2d	14w1d	4.00	21w1d	22w6d	24w6d
1.20	12w5d	13w4d	14w4d	4.10	21w3d	23w2d	25w2d
1.30	13w0d	13w6d	14w6d	4.20	21w6d	23w5d	25w5d
1.40	13w1d	14w1d	15w1d	4.30	22w1d	24w1d	26w1d
1.50	13w3d	14w3d	15w3d	4.40	22w4d	24w3d	26w4d
1.60	13w5d	14w5d	15w6d	4.50	22w6d	24w6d	27w1d
1.70	14w0d	15w0d	16w1d	4.60	23w2d	25w2d	27w4d
1.80	14w2d	15w2d	16w3d	4.70	23w4d	25w5d	28w0d
1.90	14w4d	15w5d	16w6d	4.80	24w0d	26w1d	28w3d
2.00	14w6d	16w0d	17w1d	4.90	24w3d	26w4d	29w0d
2.10	15w1d	16w2d	17w3d	5.00	24w5d	27w0d	29w3d
2.20	15w3d	16w4d	17w6d	5.10	25w1d	27w3d	30w0d
2.30	15w5d	16w6d	18w1d	5.20	25w4d	27w6d	30w3d
2.40	16w0d	17w2d	18w4d	5.30	26w0d	28w2d	31w0d
2.50	16w2d	17w4d	18w6d	5.40	26w2d	28w5d	31w3d
2.60	16w4d	17w6d	19w2d	5.50	26w5d	29w2d	32w0d
2.70	16w6d	18w2d	19w5d	5.60	27w1d	29w5d	32w3d
2.80	17w1d	18w4d	20w0d	5.70	27w4d	30w1d	33w0d
2.90	17w4d	18w6d	20w3d	5.80	28w0d	30w4d	33w4d
3.00	17w6d	19w2d	20w5d	5.90	28w3d	31w1d	34w1d
3.10	18w1d	19w4d	21w1d	6.00	28w6d	31w4d	34w4d
3.20	18w3d	20w0d	21w4d	6.10	29w2d	32w1d	35w1d
3.30	18w5d	20w2d	22w0d	6.20	29w5d	32w4d	35w5d
3.40	19w1d	20w5d	22w2d	6.30	30w1d	33w1d	36w2d
3.50	19w3d	21w0d	22w5d	6.40	30w4d	33w4d	36w6d
3.60	19w5d	21w3d	23w1d	6.50	31w0d	34w1d	37w3d
3.70	20w1d	21w5d	23w4d	6.60	31w3d	34w4d	38w0d
3.80	20w3d	22w1d	24w0d	6.70	32w0d	35w1d	38w5d

1-1-72 Femur Length (FL) Eik-Nes

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: mm

Output Unit: w(weeks)+d(days)

Min Range: 11 mm

Max Range: 42 mm

FL (mm)	GA (Weeks +Days)
11	13w+5d
12	14w+0d
13	14w+2d
14	14w+4d
15	14w+6d
16	15w+1d
17	15w+3d
18	15w+6d
19	16w+1d
20	16w+3d
21	16w+5d
22	17w+0d
23	17w+2d
24	17w+5d
25	18w+0d
26	18w+2d
27	18w+4d
28	18w+5d
29	19w+0d
30	19w+2d
31	19w+3d
32	19w+6d
33	20w+1d
34	20w+4d
35	20w+6d
36	21w+2d
37	21w+5d
38	22w+1d
39	22w+4d
40	23w+0d
41	23w+3d
42	23w+6d

1-1-73 Femur Length (FL) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight" Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 10{,}4 + 2{,}26 \times FL + 0{,}195 \times FL^2$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 1.20 cm

Max Range: 8.20 cm

Standard Deviation: 1.20 weeks

FL (cm)	GA (w+d)	FL (cm)	GA (w+d)
1.20	13w3d	4.80	25w5d
1.40	13w6d	5.00	26w4d
1.60	14w4d	5.20	27w3d
1.80	15w1d	5.40	28w1d
2.00	15w5d	5.60	29w1d
2.20	16w3d	5.80	30w0d
2.40	16w6d	6.00	30w6d
2.60	17w4d	6.20	31w6d
2.80	18w1d	6.40	32w6d
3.00	18w6d	6.60	33w6d
3.20	19w4d	6.80	34w5d
3.40	20w2d	7.00	35w5d
3.60	21w0d	7.20	36w5d
3.80	21w6d	7.40	37w5d
4.00	22w4d	7.60	38w6d
4.20	23w2d	7.80	39w6d
4.40	24w1d	8.00	40w6d
4.60	24w6d	8.20	41w6d

1-1-74 Femur Length (FL) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$GA = 10{,}35 + 2{,}46 \times FL + 0{,}17 \times FL^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 0.6 cm
Max Range: 8.2 cm

Standard Deviation:

GA (weeks		± 2SD
Low	High	(weeks)
12	18	1.38
18	24	1.80
24	30	2.08
30	36	2.96
36	42	3.12

1-1-75 Femur Length (FL) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

FL (cm)	GA (weeks)
1.00	13
1.20	14
1.60	15
1.80	16
2.20	17
2.50	18
2.80	19
3.10	20
3.40	21
3.60	22
3.90	23
4.10	24
4.40	25
4.70	26
4.90	27
5.10	28
5.40	29
5.60	30
5.90	31
6.10	32
6.30	33
6.50	34
6.70	35
6.90	36
7.10	37
7.30	38
7.40	39
7.50	40

1-1-76 Femur Length (FL) HOBBINS

Reference: Document by E-Mail of Hobbins

$$GA = 10{,}878 + (0{,}23115 \times FL) + (0{,}0020188 \times FL^2)$$

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

1-1-77 Femur Length (FL) HOHLER

Reference: Hohler C.W., Quetel T.A. "Fetal Femur Length: Equations for Computer Calculation of Gestational Age from Ultrasound Measurements" American Journal of Obstetrics and Gynecology, Vol. 143, No. 4: 479-481, June 15, 1982

$$GA = 9{,}18 + 2{,}67 \times FL + 0{,}16 \times FL^2$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 1.0 cm

Max Range: 8.0 cm

GA (weeks)	± 2SD (weeks)
<23	1.0
>23	2.8

FL	GA (w+d)		FL	GA (w+d)		FL	GA (w+d)	
(cm)	mean	± dec	(cm)	mean	± dec	(cm)	mean	± dec
1.00	12w0d	1w0d	3.40	20w1d	1w0d	5.80	30w0d	2w6d
1.10	12w2d	1w0d	3.50	20w4d	1w0d	5.90	30w4d	2w6d
1.20	12w4d	1w0d	3.60	20w6d	1w0d	6.00	31w0d	2w6d
1.30	12w6d	1w0d	3.70	21w2d	1w0d	6.10	31w4d	2w6d
1.40	13w1d	1w0d	3.80	21w5d	1w0d	6.20	31w6d	2w6d
1.50	13w4d	1w0d	3.90	22w0d	1w0d	6.30	32w3d	2w6d
1.60	13w6d	1w0d	4.00	22w3d	1w0d	6.40	32w6d	2w6d
1.70	14w1d	1w0d	4.10	22w6d	1w0d	6.50	33w2d	2w6d
1.80	14w4d	1w0d	4.20	23w1d	2w6d	6.60	33w6d	2w6d
1.90	14w6d	1w0d	4.30	23w4d	2w6d	6.70	34w2d	2w6d
2.00	15w1d	1w0d	4.40	24w0d	2w6d	6.80	34w6d	2w6d
2.10	15w4d	1w0d	4.50	24w4d	2w6d	6.90	35w2d	2w6d
2.20	15w6d	1w0d	4.60	24w6d	2w6d	7.00	35w6d	2w6d
2.30	16w1d	1w0d	4.70	25w2d	2w6d	7.10	36w2d	2w6d
2.40	16w4d	1w0d	4.80	25w5d	2w6d	7.20	36w6d	2w6d
2.50	16w6d	1w0d	4.90	26w1d	2w6d	7.30	37w2d	2w6d
2.60	17w1d	1w0d	5.00	26w4d	2w6d	7.40	37w6d	2w6d
2.70	17w4d	1w0d	5.10	27w0d	2w6d	7.50	38w2d	2w6d
2.80	17w6d	1w0d	5.20	27w3d	2w6d	7.60	38w6d	2w6d
2.90	18w2d	1w0d	5.30	27w6d	2w6d	7.70	39w2d	2w6d
3.00	18w4d	1w0d	5.40	28w2d	2w6d	7.80	39w6d	2w6d
3.10	19w0d	1w0d	5.50	28w5d	2w6d	7.90	40w2d	2w6d
3.20	19w3d	1w0d	5.60	29w1d	2w6d	8.00	40w6d	2w6d
3.30	19w5d	1w0d	5.70	29w4d	2w6d			

1-1-78 Femur Length (FL) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J. "Estimation of Gestational Age from Measurements of Fetal Long Bones" Journal of Ultrasound Medicine, 3: 75-79, February, 1984

$$GA = 9{,}54 + 2{,}977 \times FL + 0{,}10389 \times FL^2$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.00 cm
Max Range: 8.00 cm

Standard deviation (±): 1SD = 1.4 weeks

FL (cm)	GA (weeks+days)			FL (cm)	GA (weeks+days)			FL (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
1.00	10w3d	12w4d	14w6d	3.40	18w5d	20w6d	23w1d	5.80	28w1d	30w2d	32w4d
1.10	10w5d	12w6d	15w1d	3.50	19w0d	21w1d	23w3d	5.90	28w4d	30w5d	32w6d
1.20	11w1d	13w2d	15w4d	3.60	19w3d	21w4d	23w6d	6.00	28w6d	31w1d	33w2d
1.30	11w3d	13w4d	15w6d	3.70	19w6d	22w0d	24w1d	6.10	29w3d	31w4d	33w6d
1.40	11w5d	13w6d	16w1d	3.80	20w1d	22w3d	24w4d	6.20	29w6d	32w0d	34w1d
1.50	12w0d	14w1d	16w3d	3.90	20w4d	22w5d	24w6d	6.30	30w1d	32w3d	34w4d
1.60	12w3d	14w4d	16w6d	4.00	20w6d	23w1d	25w2d	6.40	30w5d	32w6d	35w1d
1.70	12w5d	14w6d	17w1d	4.10	21w2d	23w4d	25w5d	6.50	31w1d	33w2d	35w4d
1.80	13w0d	15w1d	17w3d	4.20	21w5d	23w6d	26w1d	6.60	31w4d	33w5d	35w6d
1.90	13w3d	15w4d	17w6d	4.30	22w1d	24w2d	26w4d	6.70	32w0d	34w1d	36w3d
2.00	13w5d	15w6d	18w1d	4.40	22w4d	24w5d	26w6d	6.80	32w3d	34w4d	36w6d
2.10	14w1d	16w2d	18w4d	4.50	22w6d	25w0d	27w1d	6.90	32w6d	35w0d	37w1d
2.20	14w3d	16w4d	18w6d	4.60	23w1d	25w3d	27w4d	7.00	33w2d	35w4d	37w5d
2.30	14w5d	16w6d	19w1d	4.70	23w4d	25w6d	28w0d	7.10	33w5d	35w6d	38w1d
2.40	15w1d	17w2d	19w4d	4.80	24w0d	26w1d	28w3d	7.20	34w1d	36w3d	38w4d
2.50	15w3d	17w4d	19w6d	4.90	24w3d	26w4d	28w6d	7.30	34w4d	36w6d	39w0d
2.60	15w6d	18w0d	20w1d	5.00	24w6d	27w0d	29w1d	7.40	35w1d	37w2d	39w4d
2.70	16w1d	18w2d	20w4d	5.10	25w1d	27w3d	29w4d	7.50	35w4d	37w5d	39w6d
2.80	16w4d	18w5d	20w6d	5.20	25w4d	27w6d	30w0d	7.60	36w0d	38w1d	40w3d
2.90	16w6d	19w0d	21w1d	5.30	26w0d	28w1d	30w3d	7.70	36w3d	38w4d	40w6d
3.00	17w1d	19w3d	21w4d	5.40	26w3d	28w4d	30w6d	7.80	36w6d	39w1d	41w2s
3.10	17w4d	19w6d	22w0d	5.50	26w6d	29w1d	31w2d	7.90	37w2d	39w4d	41w5d
3.20	17w6d	20w1d	22w2d	5.60	27w2d	29w4d	31w5d	8.00	37w6d	40w0d	42w1d
3.30	18w2d	20w4d	22w5d	5.70	27w5d	29w6d	32w1d				

1-1-79 Femur Length (FL) JOHNSEN

Reference: *Johnsen SL, Rasmussen S, Sollien R, Kiserud T*
Fetal age assessment based on femur length at 10- 25 weeks of gestation, and reference ranges for femur length to head circumference ratios
Acta Obstet Gynecol Scand 2005; 84: 725-733

Input Unit: mm
Output Unit: w (weeks)+d(days)
Min Range: 2 mm
Max Range: 44 mm

FL	GA (weeks+days)			FL	GA (weeks+days)		
(mm)	10%	50%	90%	(mm)	10%	50%	90%
2	10w0d	10w4d	11w1d	24	16w5d	17w4d	18w2d
3	10w3d	11w0d	11w4d	25	17w0d	17w6d	18w4d
4	10w6d	11w3d	12w0d	26	17w2d	18w1d	19w0d
5	11w1d	11w5d	12w3d	27	17w5d	18w3d	19w2d
6	11w3d	12w1d	12w5d	28	18w0d	18w6d	19w5d
7	11w6d	12w3d	13w0d	29	18w2d	19w1d	20w0d
8	12w1d	12w5d	13w3d	30	18w5d	19w4d	20w2d
9	12w3d	13w0d	13w5d	31	19w0d	19w6d	20w5d
10	12w5d	13w2d	14w0d	32	19w2d	20w2d	21w1d
11	13w0d	13w4d	14w2d	33	19w5d	20w4d	21w3d
12	13w2d	13w6d	14w4d	34	20w0d	21w0d	21w6d
13	13w4d	14w1d	14w6d	35	20w3d	21w2d	22w1d
14	13w6d	14w3d	15w1d	36	20w6d	21w5d	22w4d
15	14w1d	14w5d	15w3d	37	21w1d	22w1d	23w0d
16	14w3d	15w1d	15w6d	38	21w4d	22w3d	23w3d
17	14w5d	15w3d	16w1d	39	22w0d	22w6d	23w6d
18	15w0d	15w5d	16w3d	40	22w2d	23w2d	24w1d
19	15w2d	16w0d	16w5d	41	22w5d	23w5d	24w4d
20	15w4d	16w2d	17w0d	42	23w1d	24w1d	25w0d
21	15w6d	16w4d	17w2d	43	23w4d	24w4d	25w3d
22	16w1d	16w6d	17w5d	44	24w0d	25w0d	25w6d
23	16w3d	17w1d	18w0d				

1-1-80 Femur Length (FL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

FL (cm)	GA (weeks+days)		FL (cm)	GA (weeks+days)	
	mean	± 1SD		mean	± 1SD
2.00	16w1d	6	4.60	26w2d	10
2.10	16w3d	6	4.70	26w5d	10
2.20	16w6d	6	4.80	27w2d	10
2.30	17w1d	7	4.90	27w5d	10
2.40	17w3d	7	5.00	28w2d	10
2.50	17w6d	7	5.10	28w5d	10
2.60	18w1d	7	5.20	29w2d	11
2.70	18w3d	7	5.30	29w5d	11
2.80	18w6d	7	5.40	30w2d	11
2.90	19w1d	7	5.50	30w5d	11
3.00	19w4d	8	5.60	31w2d	11
3.10	20w0d	8	5.70	31w6d	11
3.20	20w2d	8	5.80	32w3d	11
3.30	20w5d	8	5.90	33w0d	12
3.40	21w1d	8	6.00	33w3d	12
3.50	21w3d	8	6.10	34w0d	12
3.60	21w6d	8	6.20	34w4d	12
3.70	22w2d	9	6.30	35w1d	12
3.80	22w5d	9	6.40	35w5d	12
3.90	23w1d	9	6.50	36w2d	12
4.0	23w4d	9	6.60	37w0d	12
4.10	24w0d	9	6.70	37w4d	13
4.20	24w3d	9	6.80	38w1d	13
4.30	24w6d	9	6.90	38w5d	13
4.40	25w3d	9	7.00	39w3d	13
4.50	25w6d	10			

1-1-81 Femur Length (FL) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Textbook and Atlas, 1991 Georg Thieme Verlag, pp. 326

FL	GA (weeks+days)			FL	GA (weeks+days)			FL	GA (weeks+days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
1.00	11w1d	12w2d	13w4d	3.40	19w1d	20w6d	22w3d	5.80	28w1d	30w1d	32w1d
1.10	11w4d	12w5d	13w6d	3.50	19w4d	21w1d	22w6d	5.90	28w4d	30w4d	32w4d
1.20	11w6d	13w0d	14w1d	3.60	20w0d	21w4d	23w1d	6.00	29w0d	31w0d	33w0d
1.30	12w1d	13w2d	14w4d	3.70	20w2d	21w6d	23w4d	6.10	29w4d	31w4d	33w4d
1.40	12w3d	13w5d	15w0d	3.80	20w5d	22w2d	23w6d	6.20	29w6d	31w6d	33w6d
1.50	12w5d	14w0d	15w2d	3.90	21w0d	22w5d	24w3d	6.30	30w2d	32w2d	34w2d
1.60	13w1d	14w3d	15w5d	4.00	21w3d	23w1d	24w6d	6.40	30w6d	32w6d	34w6d
1.70	13w3d	14w5d	16w0d	4.10	21w5d	23w3d	25w1d	6.50	31w1d	33w1d	35w1d
1.80	13w6d	15w1d	16w3d	4.20	22w1d	23w6d	25w4d	6.60	31w4d	33w4d	35w4d
1.90	14w1d	15w3d	16w5d	4.30	22w4d	24w1d	25w6d	6.70	32w0d	34w1d	36w1d
2.00	14w4d	15w6d	17w1d	4.40	22w6d	24w4d	26w3d	6.80	32w3d	34w4d	36w4d
2.10	14w6d	16w1d	17w3d	4.50	23w1d	25w0d	26w6d	6.90	32w6d	35w0d	37w1d
2.20	15w1d	16w4d	17w6d	4.60	23w4d	25w3d	27w1d	7.00	33w2d	35w3d	37w4d
2.30	15w3d	16w6d	18w1d	4.70	24w0d	25w6d	27w4d	7.10	33w6d	35w6d	38w0d
2.40	15w6d	17w1d	18w4d	4.80	24w3d	26w1d	28w0d	7.20	34w1d	36w2d	38w3d
2.50	16w1d	17w4d	19w1d	4.90	24w5d	26w4d	28w2d	7.30	34w4d	36w6d	39w0d
2.60	16w3d	17w6d	19w3d	5.00	25w1d	26w6d	28w5d	7.40	35w1d	37w2d	39w4d
2.70	16w6d	18w2d	19w6d	5.10	25w4d	27w2d	29w1d	7.50	35w4d	37w5d	39w6d
2.80	17w1d	18w4d	20w1d	5.20	25w6d	27w5d	29w4d	7.60	36w0d	38w1d	40w3d
2.90	17w4d	19w0d	20w4d	5.30	26w1d	28w1d	30w0d	7.70	36w4d	38w5d	40w6d
3.00	17w6d	19w3d	20w6d	5.40	26w4d	28w4d	30w4d	7.80	37w0d	39w1d	41w3d
3.10	18w1d	19w5d	21w1d	5.50	27w0d	29w0d	31w0d	7.90	37w3d	39w4d	41w6d
3.20	18w4d	20w1d	21w4d	5.60	27w3d	29w3d	31w3d	8.00	37w6d	40w1d	42w2d
3.30	18w6d	20w4d	22w1d	5.70	27w6d	29w6d	31w6d				

1-1-82 Femur Length (FL) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: FL and GA Values are taken from Fetal Growth Table; FL (50% values) are used as Input and GA as Output!

FL (cm)	GA (week
Median	
1.70	14
1.90	15
2.20	16
2.40	17
2.70	18
3.00	19
3.20	20
3.50	21
3.80	22
4.10	23
4.30	24
4.60	25
4.80	26
5.10	27
5.30	28
5.60	29
5.80	30
6.00	31
6.20	32
6.40	33
6.60	34
6.80	35
6.90	36
7.10	37
7.20	38
7.30	39

1-1-83 Femur Length (FL) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

FL (cm)	GA (weeks + days)	FL (cm)	GA (weeks + days)
0.7	12w0d	4.3	24w1d
0.8	12w2d	4.4	24w4d
0.9	12w4d	4.5	25w0d
1.0	12w6d	4.6	25w2d
1.1	13w1d	4.7	25w5d
1.2	13w4d	4.8	26w1d
1.3	13w6d	4.9	26w4d
1.4	14w1d	5.0	27w0d
1.5	14w3d	5.1	27w3d
1.6	14w5d	5.2	27w6d
1.7	15w0d	5.3	28w2d
1.8	15w3d	5.4	28w5d
1.9	15w5d	5.5	29w2d
2.0	16w0d	5.6	29w5d
2.1	16w2d	5.7	30w1d
2.2	16w5d	5.8	30w4d
2.3	17w0d	5.9	31w1d
2.4	17w2d	6.0	31w4d
2.5	17w5d	6.1	32w1d
2.6	18w0d	6.2	32w4d
2.7	18w2d	6.3	33w1d
2.8	18w5d	6.4	33w4d
2.9	19w0d	6.5	34w1d
3.0	19w2d	6.6	34w5d
3.1	19w5d	6.7	35w2d
3.2	20w0d	6.8	35w6d
3.3	20w3d	6.9	36w3d
3.4	20w5d	7.0	37w0d
3.5	21w1d	7.1	37w4d
3.6	21w3d	7.2	38w2d
3.7	21w6d	7.3	38w6d
3.8	22w2d	7.4	39w4d
3.9	22w4d	7.5	40w2d
4.0	23w0d	7.6	41w0d
4.1	23w2d	7.7	41w5d
4.2	23w5d		

1-1-84 Femur Length (FL) O'BRIEN

Reference: O´Brien G.D., Queenan J.T. "Growth of the ultrasound fetal femur length during normal pregnancy. Part I." American Journal in Obstetrics and Gynecology; December 1981; 141(7); pp. 833-887

NOTE: FL and GA Values are taken from Fetal Growth Table; FL (50% values) are used as Input and GA as Output!

FL (mm Mean	GA (weeks)
16.6	14
19.9	15
22.0	16
25.2	17
29.6	18
32.4	19
34.8	20
37.5	21
40.9	22
43.5	23
46.4	24
48.0	25
51.1	26
53.0	27
54.4	28
57.3	29
58.7	30
61.5	31
62.8	32
64.9	33
65.7	34
67.7	35
69.5	36
70.8	37
71.8	38
74.2	39
75.4	40

1-1-85 Femur Length (FL) OSAKA

Reference: Prenatal care Val. 9 No. 5

FL (cm)	GA (w+d)	FL (cm)	GA (w+d)	FL (cm)	GA (w+d)	FL (cm)	GA (w+d)	FL (cm)	GA (w+d)
0.94	13w0d	2.59	18w3d	4.04	23w6d	5.28	29w2d	6.31	34w5d
0.98	13w1d	2.63	18w4d	4.08	24w0d	5.31	29w3d	6.34	34w6d
1.03	13w2d	2.67	18w5d	4.11	24w1d	5.34	29w4d	6.36	35w0d
1.07	13w3d	2.71	18w6d	4.15	24w2d	5.37	29w5d	6.39	35w1d
1.12	13w4d	2.75	19w0d	4.18	24w3d	5.40	29w6d	6.41	35w2d
1.17	13w5d	2.79	19w1d	4.22	24w4d	5.43	30w0d	6.43	35w3d
1.21	13w6d	2.83	19w2d	4.25	24w5d	5.46	30w1d	6.46	35w4d
1.26	14w0d	2.87	19w3d	4.28	24w6d	5.49	30w2d	6.48	35w5d
1.30	14w1d	2.91	19w4d	4.32	25w0d	5.52	30w3d	6.50	35w6d
1.35	14w2d	2.95	19w5d	4.35	25w1d	5.54	30w4d	6.53	36w0d
1.39	14w3d	2.99	19w6d	4.39	25w2d	5.57	30w5d	6.55	36w1d
1.44	14w4d	3.03	20w0d	4.42	25w3d	5.60	30w6d	6.57	36w2d
1.48	14w5d	3.07	20w1d	4.45	25w4d	5.63	31w0d	6.60	36w3d
1.53	14w6d	3.11	20w2d	4.49	25w5d	5.66	31w1d	6.62	36w4d
1.57	15w0d	3.15	20w3d	4.52	25w6d	5.69	31w2d	6.64	36w5d
1.61	15w1d	3.19	20w4d	4.56	26w0d	5.71	31w3d	6.66	36w6d
1.66	15w2d	3.23	20w5d	4.59	26w1d	5.74	31w4d	6.69	37w0d
1.70	15w3d	3.27	20w6d	4.62	26w2d	5.77	31w5d	6.71	37w1d
1.75	15w4d	3.30	21w0d	4.65	26w3d	5.80	31w6d	6.73	37w2d
1.79	15w5d	3.34	21w1d	4.69	26w4d	5.82	32w0d	6.75	37w3d
1.83	15w6d	3.38	21w2d	4.72	26w5d	5.85	32w1d	6.77	37w4d
1.88	16w0d	3.42	21w3d	4.75	26w6d	5.88	32w2d	6.79	37w5d
1.92	16w1d	3.46	21w4d	4.78	27w0d	5.90	32w3d	6.82	37w6d
1.96	16w2d	3.49	21w5d	4.82	27w1d	5.93	32w4d	6.84	38w0d
2.01	16w3d	3.53	21w6d	4.85	27w2d	5.96	32w5d	6.86	38w1d
2.05	16w4d	3.57	22w0d	4.88	27w3d	5.98	32w6d	6.88	38w2d
2.09	16w5d	3.61	22w1d	4.91	27w4d	6.01	33w0d	6.90	38w3d
2.13	16w6d	3.64	22w2d	4.94	27w5d	6.04	33w1d	6.92	38w4d
2.18	17w0d	3.68	22w3d	4.97	27w6d	6.06	33w2d	6.94	38w5d
2.22	17w1d	3.72	22w4d	5.01	28w0d	6.09	33w3d	6.96	38w6d
2.26	17w2d	3.75	22w5d	5.04	28w1d	6.11	33w4d	6.98	39w0d
2.30	17w3d	3.79	22w6d	5.07	28w2d	6.14	33w5d	7.00	39w1d
2.34	17w4d	3.83	23w0d	5.10	28w3d	6.16	33w6d	7.02	39w2d
2.39	17w5d	3.86	23w1d	5.13	28w4d	6.19	34w0d	7.04	39w3d
2.43	17w6d	3.90	23w2d	5.16	28w5d	6.21	34w1d	7.06	39w4d
2.47	18w0d	3.93	23w3d	5.19	28w6d	6.24	34w2d	7.08	39w5d
2.51	18w1d	3.97	23w4d	5.22	29w0d	6.26	34w3d	7.10	39w6d
2.55	18w2d	4.01	23w5d	5.25	29w1d	6.29	34w4d	7.12	40w0d

1-1-86 Femur Length (FL) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

NOTE: FL and GA Values are taken from Fetal Growth Table; FL values are used as Input and GA as Output!

GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)
		117	22.5	150	36.0	183	49.2	216	61.0	249	69.8	282	78.0
85	8.0	118	23.0	151	36.4	184	49.6	217	61.3	250	70.0	283	78.3
86	8.5	119	23.5	152	36.8	185	50.0	218	61.7	251	70.3	284	78.5
87	9.0	120	24.0	153	37.6	186	50.4	219	62.0	252	70.5	285	78.8
88	9.5	121	24.4	154	37.8	187	50.8	220	62.3	253	70.8	286	79.0
89	10.0	122	24.8	155	38.0	188	51.3	221	62.7	254	71.0	287	79.3
90	10.5	123	25.2	156	38.4	189	51.6	222	63.0	255	71.3	288	79.5
91	11.1	124	25.6	157	38.8	190	52.0	223	63.3	256	71.5	289	79.8
92	11.7	125	26.0	158	39.2	191	52.4	224	63.5	257	71.8	290	80.0
93	12.2	126	26.4	159	39.6	192	52.8	225	63.8	258	72.0	291	80.3
94	12.8	127	26.8	160	40.0	193	53.2	226	64.0	259	72.3	292	80.5
95	13.3	128	27.2	161	40.4	194	53.6	227	64.3	260	72.5	293	80.8
96	13.8	129	27.6	162	40.8	195	54.0	228	64.5	261	72.8	294	81.0
97	14.2	130	28.0	163	41.2	196	54.3	229	64.8	262	73.0	295	81.2
98	14.6	131	28.4	164	41.6	197	54.7	230	65.0	263	73.3	296	81.4
99	15.0	132	28.8	165	42.0	198	55.0	231	65.3	264	73.5	297	81.6
100	15.4	133	29.2	166	42.4	199	55.3	232	65.5	265	73.8	298	81.8
101	15.8	134	29.6	167	42.8	200	55.6	233	65.8	266	74.0	299	82.0
102	16.2	135	30.0	168	43.2	201	56.0	234	66.0	267	74.3	300	82.2
103	16.6	136	30.4	169	43.6	202	56.3	235	66.3	268	74.5		
104	17.0	137	30.8	170	44.0	203	56.7	236	66.5	269	74.8		
105	17.4	138	31.2	171	44.4	204	57.0	237	66.8	270	75.0		
106	17.8	139	31.6	172	44.8	205	57.3	238	67.0	271	75.3		
107	18.2	140	32.0	173	45.2	206	57.7	239	67.3	272	75.5		
108	18.6	141	32.4	174	45.6	207	58.0	240	67.5	273	75.8		
109	19.0	142	32.8	175	46.0	208	58.3	241	67.8	274	76.0		
110	19.4	143	33.2	176	46.4	209	58.7	242	68.0	275	76.3		
111	19.8	144	33.6	177	46.8	210	59.0	243	68.3	276	76.5		
112	20.2	145	34.0	178	47.2	211	59.3	244	68.5	277	76.8		
113	20.6	146	34.4	179	47.6	212	59.7	245	68.8	278	77.0		
114	21.0	147	34.8	180	48.0	213	60.0	246	69.0	279	77.3		
115	21.5	148	35.2	181	48.4	214	60.3	247	69.3	280	77.5		
116	22.00	149	35.6	182	48.8	215	60.7	248	69.7	281	77.8		

1-1-87 Femur Length (FL) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

FL (cm)	GA (w+d / d)		FL (cm)	GA (w+d / d)	
	mean	± dec		mean	± dec
2.00	16w1d	6d	4.60	26w2d	10d
2.10	16w3d	6d	4.70	26w5d	10d
2.20	16w6d	6d	4.80	27w2d	10d
2.30	17w1d	7d	4.90	27w5d	10d
2.40	17w3d	7d	5.00	28w2d	10d
2.50	17w6d	7d	5.10	28w5d	10d
2.60	18w1d	7d	5.20	29w2d	11d
2.70	18w3d	7d	5.30	29w5d	11d
2.80	18w6d	7d	5.40	30w2d	11d
2.90	19w1d	7d	5.50	30w5d	11d
3.00	19w4d	8d	5.60	31w2d	11d
3.10	20w0d	8d	5.70	31w6d	11d
3.20	20w2d	8d	5.80	32w3d	11d
3.30	20w5d	8d	5.90	33w0d	12d
3.40	21w1d	8d	6.00	33w3d	12d
3.50	21w3d	8d	6.10	34w0d	12d
3.60	21w6d	8d	6.20	34w4d	12d
3.70	22w2d	9d	6.30	35w1d	12d
3.80	22w5d	9d	6.40	35w5d	12d
3.90	23w1d	9d	6.50	36w2d	12d
4.00	23w3d	9d	6.60	37w0d	12d
4.10	24w0d	9d	6.70	37w4d	13d
4.20	24w3d	9d	6.80	38w1d	13d
4.30	24w6d	9d	6.90	38w5d	13d
4.40	25w3d	9d	7.00	39w3d	13d
4.50	25w6d	10d			

1-1-88 Femur Length (FL) SIRIRAJ

Reference: *Titapant V, Siwadune T, Boriboonhirunsarn D, Sunsaneevithayakul P, Swasdimongkol S, Sutanthavibul A. Charts of Thai fetal biometries: 3. Femur length. J Med Assoc Thai 2000; 83: 299-306*

$$GA = 10{,}79561 + 0{,}244254 \cdot FL + 0{,}00232 \cdot FL^2$$

$$SD = 0{,}000298 \cdot FL^2 + 0{,}567771$$

Input Unit: mm
Output Unit: w +d
Min Range: 5 mm
Max Range: 75 mm

FL (mm)	GA mean (w+d)	GA ±1SD (d)	FL (mm)	GA mean (w+d)	GA ±1SD (d)	FL (mm)	GA mean (w+d)	GA ±1SD (d)
5	12w1d	4d	33	21w3d	6d	61	34w2d	11d
6	12w2d	4d	34	21w5d	6d	62	34w6d	11d
7	12w4d	4d	35	22w1d	6d	63	35w2d	12d
8	12w6d	4d	36	22w4d	6d	64	35w6d	12d
9	13w1d	4d	37	23w0d	6d	65	36w3d	12d
10	13w3d	4d	38	23w3d	6d	66	37w0d	13d
11	13w5d	4d	39	23w6d	7d	67	37w4d	13d
12	14w0d	4d	40	24w2d	7d	68	38w0d	13d
13	14w3d	4d	41	24w5d	7d	69	38w4d	13d
14	14w5d	4d	42	25w1d	7d	70	39w1d	14d
15	14w7d	4d	43	25w4d	7d	71	39w5d	14d
16	15w2d	4d	44	26w0d	8d	72	40w2d	14d
17	15w4d	4d	45	26w3d	8d	73	40w6d	15d
18	15w7d	4d	46	26w6d	8d	74	41w3d	15d
19	16w2d	4d	47	27w3d	8d	75	42w0d	15d
20	16w4d	4d	48	27w6d	8d			
21	16w7d	4d	49	28w2d	8d			
22	17w2d	4d	50	28w5d	9d			
23	17w4d	5d	51	29w2d	9d			
24	17w7d	5d	52	29w5d	9d			
25	18w2d	5d	53	30w1d	9d			
26	18w5d	5d	54	30w5d	10d			
27	19w0d	5d	55	31w1d	10d			
28	19w3d	5d	56	31w5d	10d			
29	19w6d	5d	57	32w2d	10d			
30	20w1d	5d	58	32w5d	10d			
31	20w4d	5d	59	33w2d	11d			
32	20w7d	6d	60	33w5d	11d			

1-1-89 Femur Length (FL) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

FL (mm)	GA (d / d)		FL (mm)	GA (d / d)	
	mean	± 1SD		mean	± 1SD
33	143	6	53	207	7
34	146	6	54	210	7
35	149	6	55	214	7
36	153	6	56	217	7
37	156	6	57	220	7
38	159	6	58	224	7
39	162	6	59	228	8
40	166	6	60	231	8
41	169	6	61	235	8
42	172	6	62	239	8
43	175	6	63	243	8
44	178	6	64	247	8
45	181	6	65	251	8
46	185	7	66	256	8
47	188	7	67	260	8
48	191	7	68	266	7
49	194	7	69	271	7
50	197	7	70	278	7
51	200	7	71	286	6
52	204	7			

1-1-90 Femur Length (FL) WARDA

Reference: Warda A.H., Deter R.L.; Rossavik I.K., Carpenter R.J., Hadlock F.P.
"Fetal Femur Length: A Critical Reevaluation of the Relationship to Menstrual Age"
Ultrasound in Obstetrics and Gynecology Vol. 66: 69-75, 1985

$$GA = e^{2,35301 + 0,231815 \times FL - 0,007804 \times FL^2}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.00 cm
Max Range: 8.00 cm

FL	GA (weeks + days)			FL	GA (weeks + days)		
(cm)	-1SD	Mean	+1SD	(cm)	-1SD	Mean	+1SD
1.00	11w6d	13w1d	14w4d	4.60	23w3d	25w6d	28w5d
1.20	12w3d	13w5d	15w2d	4.80	24w1d	26w5d	29w4d
1.40	13w0d	14w2d	15w6d	5.00	24w6d	27w4d	30w4d
1.60	13w3d	15w0d	16w4d	5.20	25w5d	28w3d	31w4d
1.80	14w0d	15w4d	17w2d	5.40	26w3d	29w2d	32w3d
2.00	14w4d	16w1d	18w0d	5.60	27w1d	30w1d	33w3d
2.20	15w1d	16w6d	18w5d	5.80	28w0d	31w0d	34w3d
2.40	15w6d	17w4d	19w3d	6.00	28w6d	31w6d	35w3d
2.60	16w3d	18w2d	20w1d	6.20	29w4d	32w6d	36w2d
2.80	17w1d	19w0d	21w0d	6.40	30w3d	33w5d	37w2d
3.00	17w5d	19w5d	21w5d	6.60	31w1d	34w4d	38w2d
3.20	18w3d	20w3d	22w4d	6.80	32w0d	35w3d	39w2d
3.40	19w0d	21w1d	23w3d	7.00	32w6d	36w2d	40w2d
3.60	19w5d	21w6d	24w2d	7.20	33w4d	37w2d	41w2d
3.80	20w3d	22w5d	25w1d	7.40	34w3d	38w1d	42w2d
4.00	21w1d	23w3d	26w0d	7.60	35w1d	39w0d	43w2d
4.20	21w6d	24w2d	26w6d	7.80	36w0d	39w6d	44w2d
4.40	22w4d	25w1d	27w6d	8.00	36w5d	40w5d	45w1d

1-1-91 Fetal Trunk Area (FTA) OSAKA

Reference: Perinatal care Vol. 9 No. 5

FTA (cm²)	GA (w+d)	FTA (cm²)	GA (w+d)	FTA (cm²)	GA (w+d)	FTA (cm²)	GA (w+d)	FTA (cm²)	GA (w+d)
5.60	14w0d	16.60	19w2d	31.70	24w4d	50.20	29w6d	70.10	35w1d
5.80	14w1d	16.90	19w3d	32.20	24w5d	50.80	30w0d	70.60	35w2d
6.00	14w2d	17.30	19w4d	32.60	24w6d	51.30	30w1d	71.10	35w3d
6.30	14w3d	17.60	19w5d	33.10	25w0d	51.80	30w2d	71.60	35w4d
6.50	14w4d	18.00	19w6d	33.60	25w1d	52.40	30w3d	72.20	35w5d
6.80	14w5d	18.40	20w0d	34.10	25w2d	52.90	30w4d	72.70	35w6d
7.10	14w6d	18.70	20w1d	34.50	25w3d	53.40	30w5d	73.20	36w0d
7.30	15w0d	19.10	20w2d	35.00	25w4d	54.00	30w6d	73.70	36w1d
7.60	15w1d	19.50	20w3d	35.50	25w5d	54.50	31w0d	74.20	36w2d
7.80	15w2d	19.90	20w4d	36.00	25w6d	55.00	31w1d	74.70	36w3d
8.10	15w3d	20.20	20w5d	36.50	26w0d	55.60	31w2d	75.20	36w4d
8.40	15w4d	20.60	20w6d	36.90	26w1d	56.10	31w3d	75.70	36w5d
8.70	15w5d	21.00	21w0d	37.40	26w2d	56.70	31w4d	76.20	36w6d
8.90	15w6d	21.40	21w1d	37.90	26w3d	57.20	31w5d	76.80	37w0d
9.20	16w0d	21.80	21w2d	38.40	26w4d	57.70	31w6d	77.30	37w1d
9.50	16w1d	22.20	21w3d	38.90	26w5d	58.30	32w0d	77.70	37w2d
9.80	16w2d	22.60	21w4d	39.40	26w6d	58.80	32w1d	78.20	37w3d
10.10	16w3d	23.00	21w5d	39.90	27w0d	59.40	32w2d	78.70	37w4d
10.40	16w4d	23.40	21w6d	40.40	27w1d	59.90	32w3d	79.20	37w5d
10.70	16w5d	23.80	22w0d	40.90	27w2d	60.40	32w4d	79.70	37w6d
11.00	16w6d	24.20	22w1d	41.40	27w3d	61.00	32w5d	80.20	38w0d
11.30	17w0d	24.70	22w2d	41.90	27w4d	61.50	32w6d	80.70	38w1d
11.60	17w1d	25.10	22w3d	42.40	27w5d	62.10	33w0d	81.10	38w2d
11.90	17w2d	25.50	22w4d	42.90	27w6d	62.60	33w1d	81.60	38w3d
12.20	17w3d	25.90	22w5d	43.40	28w0d	63.10	33w2d	82.10	38w4d
12.50	17w4d	26.40	22w6d	44.00	28w1d	63.70	33w3d	82.60	38w5d
12.80	17w5d	26.80	23w0d	44.50	28w2d	64.20	33w4d	83.00	38w6d
13.20	17w6d	27.20	23w1d	45.00	28w3d	64.70	33w5d	83.50	39w0d
13.50	18w0d	27.70	23w2d	45.50	28w4d	65.30	33w6d	83.90	39w1d
13.80	18w1d	28.10	23w3d	46.00	28w5d	65.80	34w0d	84.40	39w2d
14.10	18w2d	28.50	23w4d	46.60	28w6d	66.40	34w1d	84.80	39w3d
14.50	18w3d	29.00	23w5d	47.10	29w0d	66.90	34w2d	85.30	39w4d
14.80	18w4d	29.40	23w6d	47.60	29w1d	67.40	34w3d	85.70	39w5d
15.20	18w5d	29.90	24w0d	48.10	29w2d	67.90	34w4d	86.10	39w6d
15.50	18w6d	30.30	24w1d	48.70	29w3d	68.50	34w5d	86.60	40w0d
15.80	19w0d	30.80	24w2d	49.20	29w4d	69.00	34w6d		
16.20	19w1d	31.30	24w3d	49.70	29w5d	69.50	35w0d		

1-1-92 Fibula (FIB) JEANTY

Reference: Hansmann, Hackeloer, Staudach, Wittmann. "Ultrasound Diagnosis in Obstetrics and Gynecology." Springer-Verlag, New York, 1986, p.182.

NOTE: FIB and GA Values are taken from Fetal Growth Table; FIB (50% values) are used as Input and GA as Output!

FIB 50%	GA (weeks)
6	12
9	13
12	14
15	15
18	16
21	17
23	18
26	19
28	20
31	21
33	22
35	23
37	24
40	25
42	26
44	27
45	28
47	29
49	30
51	31
52	32
54	33
55	34
57	35
58	36
59	37
61	38
62	39
63	40

1-1-93 Gestational Sac (GS) HANSMANN

Reference: Hansmann M., Hackelöer BJ, Staudach A., "Ultraschalldiagnostik in Geburtshilfe und Gynäkologie" Springer- Verlag, 19865, pp.36

GS (cm)	GA (w+d)
0.70	4w6d
0.90	5w5d
1.00	6w0d
1.30	6w2d
1.50	6w5d
2.40	7w3d
2.80	8w2d
3.40	9w0d

1-1-94 Gestational Sac (GS) HELLMAN

Reference: Hellman LM, Kobayashi M, Fillisti L., et al. "Growth and development of the human fetus prior to the 20th week of gestation". American Journal of Obstetrics and Gynecology; March 15; 1969; 789-800

$$GA = \frac{GS + 2{,}543}{0{,}702}$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.60 cm
Max Range: 5.20 cm

GS cm	GA w+d
1.66	6w0d
1.80	6w1d
2.00	6w3d
2.20	6w6d
2.40	7w1d
2.60	7w2d
2.80	7w4d
3.00	7w6d
3.20	8w1d
3.40	8w4d
3.60	8w6d
3.80	9w1d
4.00	9w2d
4.20	9w4d
4.40	9w6d
4.60	10w1d
4.80	10w4d
5.00	10w6d
5.20	11w1d

1-1-95 Gestational Sac (GS) HOLLÄNDER

Reference: Holländer H.J. "Die Ultraschalldiagnostik in der Schwangerschaft" Urban & Schwarzenberger, München 1972

$$GA = 1{,}384 \times GS + 4{,}452$$

Input Unit: cm
Output Unit: w (weeks)
Min Range: 0.80 cm
Max Range: 4.20 cm

GS (cm)	GA (w+d)	GS (cm)	GA (w+d)
0.80	5w4d	2.60	8w0d
0.90	5w5d	2.70	8w1d
1.00	5w6d	2.80	8w2d
1.10	6w0d	2.90	8w3d
1.20	6w1d	3.00	8w4d
1.30	6w2d	3.10	8w5d
1.40	6w3d	3.20	8w6d
1.50	6w4d	3.30	9w0d
1.60	6w5d	3.40	9w1d
1.70	6w6d	3.50	9w2d
1.80	7w0d	3.60	9w3d
1.90	7w1d	3.70	9w4d
2.00	7w2d	3.80	9w5d
2.10	7w3d	3.90	9w6d
2.20	7w3d	4.00	10w0d
2.30	7w4d	4.10	10w1d
2.40	7w5d	4.20	10w2d
2.50	7w6d		

1-1-96 Gestational Sac (GS) REMPEN

Reference: Rempen A. "Biometrie in der Frühgravidität (I. Trimenon)" Der Frauenarzt; 32,4 /1991

Deviation: 5% - 50% = 10 days, 50% - 95% = 10 days

GS	GA (w+d)		GS	GA (w+d)		GS	GA (w+d)	
(cm)	mean	± dev	(cm)	mean	± dev	(cm)	mean	± dev
0.20	4w6d	1w3d	2.60	7w4d	1w3d	5.00	10w5d	1w3d
0.30	5w0d	1w3d	2.70	7w5d	1w3d	5.10	10w6d	1w3d
0.40	5w1d	1w3d	2.80	7w6d	1w3d	5.20	11w0d	1w3d
0.50	5w2d	1w3d	2.90	8w0d	1w3d	5.30	11w1d	1w3d
0.60	5w2d	1w3d	3.00	8w1d	1w3d	5.40	11w2d	1w3d
0.70	5w3d	1w3d	3.10	8w2d	1w3d	5.50	11w3d	1w3d
0.80	5w4d	1w3d	3.20	8w3d	1w3d	5.60	11w4d	1w3d
0.90	5w5d	1w3d	3.30	8w3d	1w3d	5.70	11w5d	1w3d
1.00	5w5d	1w3d	3.40	8w4d	1w3d	5.80	11w6d	1w3d
1.10	5w6d	1w3d	3.50	8w5d	1w3d	5.90	12w0d	1w3d
1.20	6w0d	1w3d	3.60	8w6d	1w3d	6.00	12w1d	1w3d
1.30	6w1d	1w3d	3.70	9w0d	1w3d	6.10	12w2d	1w3d
1.40	6w2d	1w3d	3.80	9w1d	1w3d	6.20	12w3d	1w3d
1.50	6w2d	1w3d	3.90	9w2d	1w3d	6.30	12w4d	1w3d
1.60	6w3d	1w3d	4.00	9w3d	1w3d	6.40	12w5d	1w3d
1.70	6w4d	1w3d	4.10	9w4d	1w3d	6.50	12w6d	1w3d
1.80	6w5d	1w3d	4.20	9w5d	1w3d	6.60	13w0d	1w3d
1.90	6w6d	1w3d	4.30	9w6d	1w3d	6.70	13w1d	1w3d
2.00	6w6d	1w3d	4.40	9w6d	1w3d	6.80	13w2d	1w3d
2.10	7w0d	1w3d	4.50	10w0d	1w3d	6.90	13w3d	1w3d
2.20	7w1d	1w3d	4.60	10w1d	1w3d	7.00	13w4d	1w3d
2.30	7w2d	1w3d	4.70	10w2d	1w3d	7.10	13w5d	1w3d
2.40	7w3d	1w3d	4.80	10w3d	1w3d	7.20	14w0d	1w3d
2.50	7w4d	1w3d	4.90	10w4d	1w3d	7.30	14w1d	1w3d

1-1-97 Gestational Sac (GS) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

GS (mm)	GA (d /d)		GS (mm)	GA (d /d)	
	mean	±1SD		mean	±1SD
12	31	7	32	55	0
13	32	7	33	56	0
14	33	7	34	57	0
15	34	7	35	58	0
16	36	7	36	59	0
17	37	7	37	60	0
18	38	7	38	61	0
19	40	7	39	62	0
20	41	7	40	63	0
21	42	7	41	64	0
22	43	7	42	65	0
23	44	7	43	65	0
24	46	7	44	66	0
25	47	7	45	67	0
26	48	8	46	68	0
27	49	9	47	69	0
28	50	10	48	70	0
29	51	0	49	71	0
30	52	0	50	72	0
31	53	0			

1-1-98 Head Circumference (HC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

HC (cm)	GA		HC (cm)	GA	
	w	± d		w	± d
5.9	11	7	25.0	27	18
7.0	12	7	26.3	28	18
8.4	13	7	26.9	29	21
9.6	14	10	27.4	30	21
10.8	15	10	28.4	31	21
12.8	16	10	28.8	32	24
14.1	17	10	30.0	33	24
15.1	18	14	30.5	34	28
16.0	19	14	31.0	35	28
17.0	20	14	31.7	36	28
17.6	21	14	32.1	37	28
18.8	22	14	32.8	38	28
21.0	23	14	33.6	39	28
22.0	24	14	34.0	40	28
23.1	25	14	34.4	41	28
23.8	26	14			

1-1-99 Head Circumference (HC) CFEF

Reference: Crequat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynecol.Obstet Fertil., Vol. 28 No. 2, 2000, pages 435-445

NOTE: HC and GA Values are taken from Fetal Growth Table; HC (50% values) are used as Input and GA as Output!

HC (mm)	GA (Week)
120.86	16
134.49	17
147.55	18
160.29	19
172.47	20
184.21	21
195.74	22
206.64	23
217.18	24
227.32	25
236.72	26
246.00	27
254.77	28
263.00	29
270.84	30
278.33	31
285.29	32
292.00	33
298.10	34
303.62	35
308.81	36
313.52	37
317.88	38
321.86	39
324.00	40

1-1-100 Head Circumference (HC) CHITTY

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

NOTE: HC measured (not derived from diameters)

HC (cm)	GA (weeks+days)			HC (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
8.50	12w1d	12w6d	13w4d	21.00	21w2d	22w6d	24w4d
9.00	12w4d	13w2d	14w0d	21.50	21w5d	23w2d	25w0d
9.50	12w6d	13w5d	14w3d	22.00	22w0d	23w5d	25w4d
10.00	13w2d	14w0d	14w6d	22.50	22w3d	24w1d	26w0d
10.50	13w4d	14w3d	15w2d	23.00	22w6d	24w4d	26w3d
11.00	14w0d	14w6d	15w6d	23.50	23w1d	25w0d	27w0d
11.50	14w3d	15w2d	16w2d	24.00	23w4d	25w3d	27w3d
12.00	14w5d	15w5d	16w5d	24.50	24w0d	25w6d	28w0d
12.50	15w1d	16w1d	17w1d	25.00	24w3d	26w3d	28w3d
13.00	15w3d	16w3d	17w4d	25.50	24w6d	26w6d	29w0d
13.50	15w6d	16w6d	18w0d	26.00	25w2d	27w3d	29w4d
14.00	16w1d	17w2d	18w3d	26.50	25w5d	27w6d	30w1d
14.50	16w4d	17w5d	18w6d	27.00	26w2d	28w3d	30w5d
15.00	17w0d	18w1d	19w2d	27.50	26w5d	29w0d	31w2d
15.50	17w2d	18w3d	19w5d	28.00	27w2d	29w4d	32w0d
16.00	17w5d	18w6d	20w1d	28.50	27w5d	30w1d	32w4d
16.50	18w0d	19w2d	20w4d	29.00	28w2d	30w5d	33w2d
17.00	18w3d	19w5d	21w0d	29.50	28w6d	31w2d	34w0d
17.50	18w5d	20w0d	21w3d	30.00	29w3d	32w0d	34w5d
18.00	19w1d	20w3d	21w6d	30.50	30w0d	32w5d	35w3d
18.50	19w3d	20w6d	22w2d	31.00	30w5d	33w3d	36w2d
19.00	19w6d	21w2d	22w6d	31.50	31w2d	34w1d	37w1d
19.50	20w1d	21w5d	23w2d	32.00	32w0d	34w6d	38w0d
20.00	20w4d	22w0d	23w5d	32.50	32w5d	35w5d	38w6d
20.50	20w6d	22w3d	24w1d				

1-1-101 Head Circumference (HC) CHITTY (derived)

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy" Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191, 1997

NOTE: HC derived from BPD/OFD

Input Unit: mm
Output Unit: weeks+/- days
Min Range: 80 mm
Max Range: 320 mm

HC (mm)	GA (weeks+days)			HC (mm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
80	11+3	12+4	13+5	205	21+3	22+5	24+2
85	11+6	12+6	14+1	210	21+5	23+1	24+5
90	12+2	13+2	14+4	215	22+1	23+4	25+1
95	12+4	13+5	15+0	220	22+4	24+0	25+5
100	13+0	14+1	15+3	225	22+6	24+3	26+1
105	13+3	14+4	15+5	230	23+2	24+6	26+5
110	13+6	15+0	16+1	235	23+5	25+3	27+1
115	14+2	15+3	16+4	240	24+1	25+6	27+5
120	14+5	15+6	17+0	245	24+3	26+2	28+2
125	15+1	16+2	17+3	250	24+6	26+5	28+6
130	15+4	16+4	17+6	255	25+2	27+2	29+3
135	15+6	17+0	18+2	260	25+5	27+5	30+0
140	16+2	17+3	18+5	265	26+1	28+2	30+4
145	16+5	17+6	19+1	270	26+4	28+6	31+2
150	17+1	18+2	19+3	275	27+0	29+3	32+0
155	17+4	18+5	19+6	280	27+3	30+0	32+4
160	17+6	19+1	20+2	285	27+6	30+4	33+3
165	18+2	19+3	20+5	290	28+3	31+1	34+1
170	18+5	19+6	21+1	295	28+6	31+5	35+0
175	19+1	20+2	21+4	300	29+3	32+3	35+6
180	19+3	20+5	22+0	305	30+0	33+1	36+5
185	19+6	21+1	22+3	310	30+3	33+6	37+4
190	20+2	21+4	22+6	315	31+0	34+4	38+4
195	20+4	22+0	23+2	320	31+5	35+3	39+4
200	21+0	22+2	23+5				

1-1-102 Head Circumference (HC) HADLOCK_82

Reference: Hadlock F., "Sonographic Estimation of Fetal Age and Weight" Radiologic Clinics of North America – Vol.28, No. 1, January 1990

$$GA = 8{,}8 + 0{,}55 \times HC + 0{,}00028 \times HC^3$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 8.50 cm

Max Range: 36.00 cm

Standard Deviation (±): 1SD = 1.18 weeks

HC (cm)	GA (w+d)	HC (cm)	GA (w+d)
8.50	13w5d	22.50	24w3d
9.00	14w0d	23.00	24w6d
9.50	14w2d	23.50	25w3d
10.00	14w4d	24.00	25w6d
10.50	15w0d	24.50	26w3d
11.00	15w2d	25.00	26w6d
11.50	15w4d	25.50	27w4d
12.00	15w6d	26.00	28w0d
12.50	16w2d	26.50	28w1d
13.00	16w4d	27.00	29w1d
13.50	17w0d	27.50	29w6d
14.00	17w2d	28.00	30w2d
14.50	17w5d	28.50	31w0d
15.00	18w1d	29.00	31w4d
15.50	18w3d	29.50	32w1d
16.00	18w6d	30.00	32w6d
16.50	19w1d	30.50	33w4d
17.00	19w4d	31.00	34w1d
17.50	20w0d	31.50	34w6d
18.00	20w3d	32.00	35w4d
18.50	20w6d	32.50	36w2d
19.00	21w1d	33.00	37w0d
19.50	21w4d	33.50	37w5d
20.00	22w1d	34.00	38w4d
20.50	22w4d	34.50	39w1d
21.00	23w0d	35.00	40w0d
21.50	23w3d	35.50	40w6d
22.00	23w6d	36.00	41w4d

1-1-103 Head Circumference (HC) HADLOCK_84

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$GA = 8,96 + 0,54 \times HC + 0,0003 \times HC^3$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 5.5 cm

Max Range: 35.7 cm

2SD (Standard Deviation):

GA (weeks)		± 2SD
Low	High	(weeks)
12	18	1.19
18	24	1.48
24	30	2.06
30	36	2.98
36	42	2.70

HC	Age (weeks)		HC	Age (weeks)		HC	Age (weeks)		HC	Age (weeks)	
(mm)	mean	± 2SD	(mm)	mean	± 2SD	(mm)	mean	± 2SD	(mm)	mean	± 2SD
<55	n/a	——	135	17.0	± 1.2	215	23.6	± 1.5	290	31.9	± 3.0
55	12.0	± 1.2	140	17.3	± 1.2	219	23.9	± 1.5	295	32.6	± 3.0
60	12.3	± 1.2	145	17.7	± 1.2	220	24.0	± 2.1	300	33.3	± 3.0
65	12.6	± 1.2	149	18.0	± 1.2	225	24.5	± 2.1	305	33.9	± 3.0
70	12.8	± 1.2	150	18.1	± 1.5	230	25.0	± 2.1	310	34.6	± 3.0
75	13.1	± 1.2	155	18.4	± 1.5	235	25.5	± 2.1	315	35.3	± 3.0
80	13.4	± 1.2	160	18.8	± 1.5	240	26.1	± 2.1	319	35.9	± 3.0
85	13.7	± 1.2	165	19.2	± 1.5	245	26.6	± 2.1	320	36.1	± 2.7
90	14.0	± 1.2	170	19.6	± 1.5	250	27.1	± 2.1	325	36.8	± 2.7
95	14.3	± 1.2	175	20.0	± 1.5	255	27.7	± 2.1	330	37.6	± 2.7
100	14.7	± 1.2	180	20.4	± 1.5	260	28.3	± 2.1	335	38.3	± 2.7
105	15.0	± 1.2	185	20.8	± 1.5	265	28.9	± 2.1	340	39.1	± 2.7
110	15.3	± 1.2	190	21.3	± 1.5	270	29.4	± 2.1	345	39.9	± 2.7
115	15.6	± 1.2	195	21.7	± 1.5	274	29.9	± 2.1	350	40.7	± 2.7
120	16.0	± 1.2	200	22.2	± 1.5	275	30.0	± 3.0	355	41.6	± 2.7
125	16.3	± 1.2	205	22.6	± 1.5	280	30.7	± 3.0	360	42.4	± 2.7
130	16.6	± 1.2	210	23.1	± 1.5	285	31.3	± 3.0	>360	n/a	——

1-1-104 Head Circumference (HC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann)"Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

HC (cm	GA (weeks)
10.60	14
11.50	15
12.70	16
14.00	17
15.20	18
16.40	19
17.60	20
19.00	21
20.30	22
21.50	23
22.60	24
24.00	25
25.10	26
26.30	27
27.40	28
28.40	29
29.30	30
30.30	31
31.10	32
31.80	33
32.50	34
33.20	35
33.70	36
34.00	37
34.40	38
34.70	39
34.90	40

1-1-105 Head Circumference (HC) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J. C., Cantraine F., Tack B., Bracken M.; "A longitudinal study of fetal head biometry" American Journal of Perinatology; Volume1; Number 2; January 1984

NOTE: HC and GA Values are taken from the Fetal Growth Table and converted to a Fetal Age Table (Growth table see: Section 1-2-102on page 1-242)

HC (cm)	GA (weeks)
5.00	10
6.30	11
7.50	12
8.80	13
10.10	14
11.30	15
12.60	16
13.80	17
15.10	18
16.30	19
17.50	20
18.70	21
19.80	22
21.00	23
22.10	24
23.20	25
24.20	26
25.20	27
26.20	28
27.10	29
28.10	30
28.90	31
29.70	32
30.50	33
31.20	34
31.90	35
32.50	36
33.00	37
33.50	38
33.90	39
34.30	40

1-1-106 Head Circumference (HC) JOHNSEN

Reference: Johnsen,S.L., Rasmussen,S., Sollien,R., Kiserud,T.,"Fetal age assessment based on ultrasound head biometry and the effect of maternal and fetal factors", Acta Obstet Gynecol.Scand. Vol. 83 No. 8, 2004, pages 716-723.

	10th	50th	90th		10th	50th	90th
HC (cm)	week days	week days	week days	HC (cm)	week days	week days	week days
5.0	9w5d	10w2d	10w6d	13.6	16w1d	17w0d	17w6d
5.2	10w0d	10w3d	11w0d	13.8	16w3d	17w1d	18w0d
5.4	10w1d	10w4d	11w2d	14.0	16w4d	17w2d	18w1d
5.6	10w2d	10w6d	11w3d	14.2	16w5d	17w3d	18w2d
5.8	10w3d	11w0d	11w4d	14.4	16w6d	17w4d	18w3d
6.0	10w4d	11w1d	11w5d	14.6	17w0d	17w6d	18w5d
6.2	10w5d	11w2d	11w6d	14.8	17w1d	18w0d	18w6d
6.4	10w6d	11w3d	12w0d	15.0	17w2d	18w1d	19w0d
6.6	11w0d	11w4d	12w1d	15.2	17w3d	18w2d	19w1d
6.8	11w1d	11w5d	12w2d	15.4	17w4d	18w3d	19w2d
7.0	11w2d	11w6d	12w4d	15.6	17w5d	18w4d	19w3d
7.2	11w3d	12w0d	12w5d	15.8	18w0d	18w5d	19w5d
7.4	11w4d	12w1d	12w6d	16.0	18w1d	19w0d	19w6d
7.6	11w5d	12w2d	13w0d	16.2	18w2d	19w1d	20w0d
7.8	11w6d	12w3d	13w1d	16.4	18w3d	19w2d	20w1d
8.0	12w0d	12w4d	13w2d	16.6	18w4d	19w3d	20w2d
8.2	12w1d	12w5d	13w3d	16.8	18w5d	19w4d	20w3d
8.4	12w2d	13w0d	13w4d	17.0	18w6d	19w5d	20w5d
8.6	12w3d	13w1d	13w5d	17.2	19w0d	20w0d	20w6d
8.8	12w4d	13w2d	14w0d	17.4	19w2d	20w1d	21w0d
9.0	12w5d	13w3d	14w1d	17.6	19w3d	20w2d	21w1d
9.2	12w6d	13w4d	14w2d	17.8	19w4d	20w3d	21w3d
9.4	13w0d	13w5d	14w3d	18.0	19w5d	20w4d	21w4d
9.6	13w1d	13w6d	14w4d	18.2	19w6d	20w5d	21w5d
9.8	13w2d	14w0d	14w5d	18.4	20w0d	21w0d	21w6d
10.0	13w3d	14w1d	14w6d	18.6	20w2d	21w1d	22w0d
10.2	13w4d	14w2d	15w0d	18.8	20w3d	21w2d	22w2d
10.4	13w5d	14w3d	15w2d	19.0	20w4d	21w3d	22w3d
10.6	13w6d	14w4d	15w3d	19.2	20w5d	21w4d	22w4d
10.8	14w1d	14w6d	15w4d	19.4	20w6d	21w6d	22w5d
11.0	14w2d	15w0d	15w5d	19.6	21w0d	22w0d	23w0d
11.2	14w3d	15w1d	15w6d	19.8	21w2d	22w1d	23w1d
11.4	14w4d	15w2d	16w0d	20.0	21w3d	22w2d	23w2d
11.6	14w5d	15w3d	16w1d	20.2	21w4d	22w3d	23w3d
11.8	14w6d	15w4d	16w2d	20.4	21w5d	22w5d	23w4d
12.0	15w0d	15w5d	16w4d	20.6	21w6d	22w6d	23w6d
12.2	15w1d	15w6d	16w5d	20.8	22w1d	23w0d	24w0d
12.4	15w2d	16w0d	16w6d	21.0	22w2d	23w1d	24w1d
12.6	15w3d	16w1d	17w0d	21.2	22w3d	23w3d	24w3d
12.8	15w4d	16w3d	17w1d	21.4	22w4d	23w4d	24w4d
13.0	15w5d	16w4d	17w2d	21.6	22w5d	23w5d	24w5d
13.2	15w6d	16w5d	17w3d	21.8	23w0d	23w6d	24w6d
13.4	16w0d	16w6d	17w5d	22.0	23w1d	24w1d	25w1d

1-1-107 Head Circumference (HC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)	HC (cm)	GA (w+d)
7.2	12w0d	10.7	14w4d	14.2	17w1d	16.8	19w1d	20.3	22w1d	23.8	25w3d	27.3	29w1d	30.8	33w6d
7.3	12w1d	10.8	14w4d	14.3	17w2d	16.9	19w2d	20.4	22w2d	23.9	25w4d	27.4	29w2d	30.9	34w0d
7.4	12w1d	10.9	14w5d	14.4	17w3d	17.0	19w2d	20.5	22w2d	24.0	25w5d	27.5	29w3d	31.0	34w1d
7.5	12w1d	11.0	14w5d	14.5	17w3d	17.1	19w3d	20.6	22w3d	24.1	25w6d	27.6	29w4d	31.1	34w2d
7.6	12w2d	11.1	14w6d	14.6	17w4d	17.2	19w4d	20.7	22w3d	24.2	25w6d	27.7	29w4d	31.2	34w4d
7.7	12w2d	11.2	14w6d	14.7	17w4d	17.3	19w4d	20.8	22w4d	24.3	26w0d	27.8	29w5d	31.3	34w5d
7.8	12w3d	11.3	15w0d	14.8	17w5d	17.4	19w5d	20.9	22w5d	24.4	26w1d	27.9	29w6d	31.4	34w6d
7.9	12w3d	11.4	15w0d	14.9	17w5d	17.5	19w5d	21.0	22w5d	24.5	26w1d	28.0	30w0d	31.5	35w0d
8.0	12w4d	11.5	15w1d	15.0	17w6d	17.6	19w6d	21.1	22w6d	24.6	26w2d	28.1	30w1d	31.6	35w2d
8.1	12w4d	11.6	15w2d	15.1	17w6d	17.7	19w6d	21.2	23w0d	24.7	26w3d	28.2	30w2d	31.7	35w3d
8.2	12w5d	11.7	15w2d	14.3	17w2d	17.8	20w0d	21.3	23w0d	24.8	26w4d	28.3	30w2d	31.8	35w5d
8.3	12w5d	11.8	15w3d	14.4	17w3d	17.9	20w1d	21.4	23w1d	24.9	26w4d	28.4	30w3d	31.9	35w6d
8.4	12w5d	11.9	15w3d	14.5	17w3d	18.0	20w1d	21.5	23w2d	25.0	26w5d	28.5	30w4d	32.0	36w1d
8.5	12w6d	12.0	15w4d	14.6	17w4d	18.1	20w2d	21.6	23w2d	25.1	26w6d	28.6	30w5d	32.1	36w2d
8.6	12w6d	12.1	15w4d	14.7	17w4d	18.2	20w2d	21.7	23w3d	25.2	26w6d	28.7	30w6d	32.2	36w4d
8.7	13w0d	12.2	15w5d	14.8	17w5d	18.3	20w3d	21.8	23w4d	25.3	27w0d	28.8	31w0d	32.3	36w5d
8.8	13w0d	12.3	15w5d	14.9	17w5d	18.4	20w3d	21.9	23w4d	25.4	27w1d	28.9	31w1d	32.4	37w0d
8.9	13w1d	12.4	15w6d	15.0	17w6d	18.5	20w4d	22.0	23w5d	25.5	27w2d	29.0	31w1d	32.5	37w1d
9.0	13w1d	12.5	15w6d	15.1	17w6d	18.6	20w5d	22.1	23w6d	25.6	27w2d	29.1	31w2d	32.6	37w3d
9.1	13w2d	12.6	16w0d	15.2	18w0d	18.7	20w5d	22.2	23w6d	25.7	27w3d	29.2	31w3d	32.7	37w5d
9.2	13w2d	12.7	16w0d	15.3	18w0d	18.8	20w6d	22.3	24w0d	25.8	27w4d	29.3	31w4d	32.8	38w0d
9.3	13w3d	12.8	16w1d	15.4	18w1d	18.9	20w6d	22.4	24w1d	25.9	27w5d	29.4	31w5d	32.9	38w1d
9.4	13w4d	12.9	16w2d	15.5	18w1d	19.0	21w0d	22.5	24w1d	26.0	27w5d	29.5	31w6d	33.0	38w3d
9.5	13w4d	13.0	16w2d	15.6	18w2d	19.1	21w1d	22.6	24w2d	26.1	27w6d	29.6	32w0d	33.1	38w5d
9.6	13w5d	13.1	16w3d	15.7	18w2d	19.2	21w1d	22.7	24w3d	26.2	28w0d	29.7	32w1d	33.2	39w0d
9.7	13w5d	13.2	16w3d	15.8	18w3d	19.3	21w2d	22.8	24w3d	26.3	28w1d	29.8	32w2d	33.3	39w2d
9.8	13w6d	13.3	16w4d	15.9	18w4d	19.4	21w2d	22.9	24w4d	26.4	28w1d	29.9	32w3d	33.4	39w4d
9.9	13w6d	13.4	16w4d	16.0	18w4d	19.5	21w3d	23.0	24w5d	26.5	28w2d	30.0	32w4d	33.5	39w6d
10.0	14w0d	13.5	16w5d	16.1	18w5d	19.6	21w4d	23.1	24w5d	26.6	28w3d	30.1	32w5d	33.6	40w1d
10.1	14w0d	13.6	16w5d	16.2	18w5d	19.7	21w4d	23.2	24w6d	26.7	28w4d	30.2	32w6d	33.7	40w4d
10.2	14w1d	13.7	16w6d	16.3	18w6d	19.8	21w5d	23.3	25w0d	26.8	28w4d	30.3	33w0d	33.8	40w6d
10.3	14w1d	13.8	16w6d	16.4	18w6d	19.9	21w5d	23.4	25w1d	26.9	28w5d	30.4	33w1d		
10.4	14w2d	13.9	17w0d	16.5	19w0d	20.0	21w6d	23.5	25w1d	27.0	28w6d	30.5	33w2d		
10.5	14w3d	14.0	17w0d	16.6	19w0d	20.1	22w0d	23.6	25w2d	27.1	29w0d	30.6	33w3d		
10.6	14w3d	14.1	17w1d	16.7	19w1d	20.2	22w0d	23.7	25w3d	27.2	29w0d	30.7	33w5d		

1-1-108 Head Circumference (HC) MERZ

Reference: E. Merz, W. Goldhofer, E. Timor-Tritsch "Ultrasound in Gynecology and Obstetrics" Text book and Atlas, 1991 Georg Thieme Verlag, pp. 326

HC	GA (weeks+days)			HC	GA (weeks+days)			HC	GA (weeks+days)			HC	GA (weeks+days)		
(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%	(cm)	5%	50%	95%
7.20	11w0d	12w1d	13w1d	14.60	15w6d	17w2d	18w5d	22.00	21w4d	23w2d	25w0d	29.40	28w6d	30w5d	32w4d
7.40	11w1d	12w2d	13w4d	14.80	16w0d	17w4d	19w0d	22.20	21w6d	23w4d	25w1d	29.60	29w0d	30w6d	32w6d
7.60	11w1d	12w3d	13w4d	15.00	16w1d	17w4d	19w1d	22.40	21w6d	23w4d	25w2d	29.80	29w1d	31w1d	33w0d
7.80	11w2d	12w4d	13w5d	15.20	16w2d	17w6d	19w2d	22.60	22w1d	23w6d	25w4d	30.00	29w3d	31w3d	33w3d
8.00	11w4d	12w5d	13w6d	15.40	16w3d	17w6d	19w3d	22.80	22w1d	24w0d	25w6d	30.20	29w4d	31w4d	33w4d
8.20	11w4d	12w6d	14w0d	15.60	16w4d	18w1d	19w4d	23.00	22w3d	24w1d	26w0d	30.40	29w6d	31w6d	33w6d
8.40	11w5d	12w6d	14w1d	15.80	16w5d	18w1d	19w5d	23.20	22w4d	24w3d	26w1d	30.60	30w1d	32w1d	34w1d
8.60	11w6d	13w1d	14w2d	16.00	16w6d	18w3d	19w6d	23.40	22w5d	24w4d	26w2d	30.80	30w2d	32w2d	34w2d
8.80	12w0d	13w1d	14w3d	16.20	17w0d	18w4d	20w0d	23.60	22w6d	24w5d	26w4d	31.00	30w4d	32w4d	34w4d
9.00	12w1d	13w2d	14w4d	16.40	17w1d	18w5d	20w1d	23.80	23w1d	24w6d	26w5d	31.20	30w6d	32w6d	34w6d
9.20	12w2d	13w4d	14w5d	16.60	17w2d	18w6d	20w2d	24.00	23w2d	25w1d	26w6d	31.40	31w1d	33w1d	35w1d
9.40	12w3d	13w4d	14w6d	16.80	17w4d	19w0d	20w4d	24.20	23w4d	25w2d	27w1d	31.60	31w3d	33w3d	35w3d
9.60	12w4d	13w5d	14w6d	17.00	17w4d	19w1d	20w4d	24.40	23w5d	25w4d	27w2d	31.80	31w4d	33w4d	35w4d
9.80	12w5d	13w6d	15w1d	17.20	17w6d	19w2d	20w6d	24.60	23w6d	25w5d	27w4d	32.00	31w6d	33w6d	36w0d
10.00	12w6d	14w0d	15w1d	17.40	17w6d	19w3d	20w6d	24.80	24w1d	25w6d	27w5d	32.20	32w0d	34w1d	36w1d
10.20	12w6d	14w1d	15w4d	17.60	18w0d	19w4d	21w1d	25.00	24w1d	26w0d	27w6d	32.40	32w2d	34w3d	36w4d
10.40	13w0d	14w2d	15w4d	17.80	18w1d	19w6d	21w3d	25.20	24w3d	26w1d	28w0d	32.60	32w4d	34w5d	36w6d
10.60	13w1d	14w3d	15w5d	18.00	18w2d	19w6d	21w4d	25.40	24w4d	26w3d	28w1d	32.80	32w6d	34w6d	37w0d
10.80	13w2d	14w4d	15w6d	18.20	18w4d	20w1d	21w5d	25.60	24w6d	26w4d	28w3d	33.00	33w1d	35w1d	37w2d
11.00	13w3d	14w5d	16w0d	18.40	18w4d	20w1d	21w6d	25.80	25w0d	26w6d	28w4d	33.20	33w2d	35w4d	37w5d
11.20	13w4d	14w6d	16w1d	18.60	18w6d	20w3d	22w0d	26.00	25w1d	27w0d	28w6d	33.40	33w4d	35w6d	38w0d
11.40	13w5d	15w0d	16w2d	18.80	19w0d	20w4d	22w1d	26.20	25w3d	27w1d	29w0d	33.60	33w6d	36w1d	38w2d
11.60	13w6d	15w1d	16w3d	19.00	19w1d	20w5d	22w2d	26.40	25w4d	27w3d	29w1d	33.80	34w1d	36w3d	38w4d
11.80	14w0d	15w2d	16w4d	19.20	19w2d	20w6d	22w4d	26.60	25w6d	27w4d	29w3d	34.00	34w3d	36w4d	38w6d
12.00	14w1d	15w3d	16w5d	19.40	19w4d	21w1d	22w5d	26.80	26w0d	27w6d	29w4d	34.20	34w5d	36w6d	39w1d
12.20	14w1d	15w4d	17w0d	19.60	19w4d	21w1d	22w6d	27.00	26w1d	28w1d	30w0d	34.40	35w0d	37w1d	39w3d
12.40	14w2d	15w5d	17w1d	19.80	19w5d	21w3d	23w0d	27.20	26w3d	28w2d	30w1d	34.60	35w2d	37w4d	39w5d
12.60	14w3d	15w6d	17w1d	20.00	19w6d	21w4d	23w2d	27.40	26w4d	28w4d	30w3d	34.80	35w4d	37w6d	40w1d
12.80	14w4d	16w0d	17w3d	20.20	20w0d	21w5d	23w3d	27.60	26w6d	28w5d	30w4d	35.00	35w6d	38w1d	40w4d
13.00	14w5d	16w1d	17w4d	20.40	20w1d	21w6d	23w4d	27.80	27w0d	28w6d	30w6d	35.20	36w1d	38w4d	40w6d
13.20	14w6d	16w2d	17w5d	20.60	20w3d	22w1d	23w6d	28.00	27w1d	29w1d	31w0d	35.40	36w4d	38w6d	41w1d
13.40	15w0d	16w3d	17w6d	20.80	20w4d	22w1d	23w6d	28.20	27w3d	29w2d	31w1d	35.60	36w6d	39w1d	41w3d
13.60	15w1d	16w4d	18w0d	21.00	20w5d	22w3d	24w1d	28.40	27w5d	29w4d	31w4d	35.80	37w1d	39w4d	41w6d
13.80	15w2d	16w5d	18w1d	21.20	20w6d	22w4d	24w2d	28.60	27w6d	29w6d	31w5d	36.00	37w4d	39w6d	42w1d
14.00	15w4d	16w6d	18w2d	21.40	21w0d	22w5d	24w3d	28.80	28w1d	30w0d	31w6d	36.20	37w6d	40w1d	42w3d
14.20	15w4d	17w0d	18w3d	21.60	21w1d	22w6d	24w4d	29.00	28w2d	30w1d	32w1d	36.40	38w1d	40w4d	42w6d
14.40	15w6d	17w1d	18w4d	21.80	21w3d	23w1d	24w6d	29.20	28w4d	30w4d	32w3d				

1-1-109 Head Circumference (HC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: HC and GA Values are taken from Fetal Growth Table; HC (50% values) are used as Input and GA as Output!

HC (cm	GA (Week)
Median	
11.00	14
12.00	15
13.00	16
14.10	17
15.20	18
16.30	19
17.50	20
18.70	21
19.80	22
21.00	23
22.20	24
23.40	25
24.50	26
25.60	27
26.70	28
27.70	29
28.70	30
29.60	31
30.40	32
31.10	33
31.70	34
32.30	35
32.70	36
33.00	37
33.20	38
33.30	39

1-1-110 Head Circumference (HC) SIRIRAJ

Reference: Sutanthavibul A. Charts of Thai fetal biometries: Head Circumference. Siriraj Hosp Gaz 2000; 52: 448

$$GA = 7{,}533271 + 0{,}069611 \cdot HC + 2{,}83 \times 10^{-7} \cdot HC^3$$

$$SD = 6{,}26 \times 10^{-6} \cdot HC^2 + 0{,}002626 \cdot HC + 2{,}182577$$

Input Unit: mm
Output Unit: w+d
Min Range: 60 mm
Max Range: 340 mm

HC (mm)	GA		HC (mm)	GA		HC (mm)	GA	
	mean (w+d)	±1SD (d)		mean (w+d)	±1SD (d)		mean (w+d)	±1SD (d)
60	11w5d	16d	165	20w2d	19d	270	31w6d	23d
65	12w1d	16d	170	20w5d	19d	275	32w4d	23d
70	12w4d	16d	175	21w2d	19d	280	33w2d	23d
75	12w6d	16d	180	21w5d	19d	285	33w6d	24d
80	13w2d	17d	185	22w1d	20d	290	34w4d	24d
85	13w4d	17d	190	22w5d	20d	295	35w2d	24d
90	14w0d	17d	195	23w1d	20d	300	36w0d	24d
95	14w3d	17d	200	23w5d	20d	305	36w6d	24d
100	14w5d	17d	205	24w2d	20d	310	37w4d	25d
105	15w1d	17d	210	24w5d	21d	315	38w2d	25d
110	15w4d	17d	215	25w2d	21d	320	39w1d	25d
115	15w7d	17d	220	25w6d	21d	325	39w6d	25d
120	16w3d	18d	225	26w3d	21d	330	40w5d	26d
125	16w6d	18d	230	26w7d	21d	335	41w3d	26d
130	17w1d	18d	235	27w4d	21d	340	42w2d	26d
135	17w4d	18d	240	28w1d	22d			
140	18w0d	18d	245	28w5d	22d			
145	18w3d	18d	250	29w3d	22d			
150	18w7d	19d	255	29w7d	22d			
155	19w3d	19d	260	30w4d	22d			
160	19w6d	19d	265	31w2d	23d			

1-1-111 Humerus Length (HL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

HL (cm)	GA		HL (cm)	GA	
	w	± d		w	± d
0.8	11	7	4.7	27	14
0.9	12	7	5.0	28	18
1.1	13	7	5.1	29	18
1.4	14	7	5.2	30	21
1.7	15	7	5.4	31	21
2.1	16	7	5.6	32	21
2.5	17	10	5.7	33	21
2.7	18	10	5.9	34	21
2.9	19	14	6.0	35	21
3.1	20	14	6.2	36	21
3.2	21	14	6.3	37	28
3.5	22	14	6.4	38	28
3.8	23	14	6.5	39	28
4.0	24	14	6.6	40	28
4.3	25	14	6.8	41	28
4.4	26	14			

1-1-112 Humerus Length (HL) HOBBINS

Reference: Document by E-Mail of Hobbins

$$GA = 10{,}216 + (0{,}23839 \times HL) + (0{,}0031359 \times HL^2)$$

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

1-1-113 Humerus Length (HL) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J., "Estimation of Gestational Age from Measurements of Fetal Long Bones." J Ultrasound Med 3:75-79, 1984

HL (cm)	GA (weeks + days)			HL (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
1.00	9w6d	12w4d	15w2d	4.00	21w4d	24w2d	27w1d
1.10	10w1d	12w6d	15w4d	4.10	22w0d	24w6d	27w4d
1.20	10w3d	13w1d	15w6d	4.20	22w4d	25w2d	28w0d
1.30	10w6d	13w4d	16w1d	4.30	23w0d	25w5d	28w4d
1.40	11w1d	13w6d	16w4d	4.40	23w4d	26w1d	29w0d
1.50	11w3d	14w1d	16w6d	4.50	24w0d	26w5d	29w4d
1.60	11w6d	14w4d	17w2d	4.60	24w4d	27w1d	30w0d
1.70	12w1d	14w6d	17w4d	4.70	25w0d	27w5d	30w4d
1.80	12w4d	15w1d	18w0d	4.80	25w4d	28w1d	31w0d
1.90	12w6d	15w4d	18w2d	4.90	26w0d	28w6d	31w4d
2.00	13w1d	15w6d	18w5d	5.00	26w4d	29w2d	32w0d
2.10	13w4d	16w2d	19w1d	5.10	27w1d	29w6d	32w4d
2.20	13w6d	16w5d	19w3d	5.20	27w4d	30w2d	33w1d
2.30	14w2d	17w1d	19w6d	5.30	28w1d	30w6d	33w4d
2.40	14w5d	17w3d	20w1d	5.40	28w5d	31w3d	34w1d
2.50	15w1d	17w6d	20w4d	5.50	29w1d	32w0d	34w5d
2.60	15w4d	18w1d	21w0d	5.60	29w6d	32w4d	35w2d
2.70	15w6d	18w4d	21w3d	5.70	30w2d	33w1d	35w6d
2.80	16w2d	19w0d	21w6d	5.80	20w6d	33w4d	36w3d
2.90	16w5d	19w3d	22w1d	5.90	31w3d	34w1d	36w6d
3.00	17w1d	19w6d	22w4d	6.00	32w0d	34w6d	37w4d
3.10	17w4d	20w2d	23w0d	6.10	32w4d	35w2d	38w1d
3.20	18w0d	20w5d	23w4d	6.20	33w1d	35w6d	38w5d
3.30	18w3d	21w1d	23w6d	6.30	33w6d	36w4d	39w2d
3.40	18w6d	21w4d	24w2d	6.40	34w3d	37w1d	39w6d
3.50	19w2d	22w0d	24w6d	6.50	35w0d	37w5d	40w4d
3.60	19w5d	22w4d	25w1d	6.60	35w4d	38w2d	41w1d
3.70	20w1d	22w6d	25w5d	6.70	36w1d	38w6d	41w5d
3.80	20w4d	23w3d	26w1d	6.80	36w6d	39w4d	42w2d
3.90	21w1d	23w6d	26w4d	6.90	37w3d	40w1d	42w6d

1-1-114 Humerus Length (HL) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: HL and GA Values are taken from Fetal Growth Table; HL (50% values) are used as Input and GA as Output!

HL (cm) 50%	GA (weeks)	HL (cm) 50%	GA (weeks)
0.80	12.5	4.70	27.5
1.00	13.0	4.80	28.0
1.20	13.5	4.90	28.5
1.30	14.0	5.00	29.0
1.50	14.5	5.10	29.5
1.70	15.0	5.20	30.0
1.80	15.5	5.30	30.5
2.00	16.0	5.40	31.0
2.10	16.5	5.50	31.5
2.30	17.0	5.50	32.0
2.40	17.5	5.60	32.5
2.60	18.0	5.70	33.0
2.70	18.5	5.80	33.5
2.80	19.0	5.90	34.0
3.00	19.5	5.90	34.5
3.10	20.0	6.00	35.0
3.20	20.5	6.10	35.5
3.30	21.0	6.10	36.0
3.50	21.5	6.20	36.5
3.60	22.0	6.30	37.0
3.70	22.5	6.30	37.5
3.80	23.0	6.40	38.0
3.90	23.5	6.40	38.5
4.00	24.0	6.50	39.0
4.10	24.5	6.50	39.5
4.20	25.0	6.60	40.0
4.30	25.5	6.60	40.5
4.50	26.0	6.60	41.0
4.60	26.5	6.70	41.5
4.70	27.0		

1-1-115 Humerus Length (HL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

HL (cm)	GA (w+d)	HL (cm)	GA (w+d)	HL (cm)	GA (w+d)	HL (cm)	GA (w+d)	HL (cm)	GA (w+d)
1.01	13w0d	2.52	18w3d	3.79	23w6d	4.83	29w2d	5.62	34w5d
1.05	13w1d	2.56	18w4d	3.82	24w0d	4.85	29w3d	5.64	34w6d
1.09	13w2d	2.59	18w5d	3.85	24w1d	4.87	29w4d	5.65	35w0d
1.14	13w3d	2.63	18w6d	3.88	24w2d	4.90	29w5d	5.67	35w1d
1.18	13w4d	2.67	19w0d	3.91	24w3d	4.92	29w6d	5.69	35w2d
1.22	13w5d	2.70	19w1d	3.94	24w4d	4.94	30w0d	5.71	35w3d
1.26	13w6d	2.74	19w2d	3.97	24w5d	4.97	30w1d	5.72	35w4d
1.31	14w0d	2.77	19w3d	4.00	24w6d	4.99	30w2d	5.74	35w5d
1.35	14w1d	2.81	19w4d	4.03	25w0d	5.01	30w3d	5.76	35w6d
1.39	14w2d	2.84	19w5d	4.06	25w1d	5.04	30w4d	5.77	36w0d
1.43	14w3d	2.88	19w6d	4.09	25w2d	5.06	30w5d	5.79	36w1d
1.47	14w4d	2.91	20w0d	4.12	25w3d	5.08	30w6d	5.80	36w2d
1.51	14w5d	2.95	20w1d	4.14	25w4d	5.10	31w0d	5.82	36w3d
1.55	14w6d	2.98	20w2d	4.17	25w5d	5.12	31w1d	5.84	36w4d
1.59	15w0d	3.02	20w3d	4.20	25w6d	5.15	31w2d	5.85	36w5d
1.63	15w1d	3.05	20w4d	4.23	26w0d	5.17	31w3d	5.87	36w6d
1.67	15w2d	3.09	20w5d	4.26	26w1d	5.19	31w4d	5.88	37w0d
1.71	15w3d	3.12	20w6d	4.28	26w2d	5.21	31w5d	5.90	37w1d
1.75	15w4d	3.15	21w0d	4.31	26w3d	5.23	31w6d	5.91	37w2d
1.79	15w5d	3.19	21w1d	4.34	26w4d	5.25	32w0d	5.93	37w3d
1.83	15w6d	3.22	21w2d	4.37	26w5d	5.27	32w1d	5.94	37w4d
1.87	16w0d	3.25	21w3d	4.39	26w6d	5.29	32w2d	5.95	37w5d
1.91	16w1d	3.29	21w4d	4.42	27w0d	5.31	32w3d	5.97	37w6d
1.95	16w2d	3.32	21w5d	4.45	27w1d	5.33	32w4d	5.98	38w0d
1.99	16w3d	3.35	21w6d	4.47	27w2d	5.35	32w5d	6.00	38w1d
2.03	16w4d	3.38	22w0d	4.50	27w3d	5.37	32w6d	6.01	38w2d
2.07	16w5d	3.42	22w1d	4.53	27w4d	5.39	33w0d	6.02	38w3d
2.11	16w6d	3.45	22w2d	4.55	27w5d	5.41	33w1d	6.04	38w4d
2.15	17w0d	3.48	22w3d	4.58	27w6d	5.43	33w2d	6.05	38w5d
2.18	17w1d	3.51	22w4d	4.60	28w0d	5.45	33w3d	6.06	38w6d
2.22	17w2d	3.54	22w5d	4.63	28w1d	5.47	33w4d	6.08	39w0d
2.26	17w3d	3.58	22w6d	4.65	28w2d	5.49	33w5d	6.09	39w1d
2.30	17w4d	3.61	23w0d	4.68	28w3d	5.51	33w6d	6.10	39w2d
2.34	17w5d	3.64	23w1d	4.70	28w4d	5.53	34w0d	6.11	39w3d
2.37	17w6d	3.67	23w2d	4.73	28w5d	5.55	34w1d	6.13	39w4d
2.41	18w0d	3.70	23w3d	4.75	28w6d	5.57	34w2d	6.14	39w5d
2.45	18w1d	3.73	23w4d	4.78	29w0d	5.58	34w3d	6.15	39w6d
2.48	18w2d	3.76	23w5d	4.80	29w1d	5.60	34w4d	6.16	40w0d

1-1-116 Length of Vertebra (LV) TOKYO

Reference: Tokyo University Method 1986, 6 by University Tokyo

LV (mm)	GA (d)		LV (mm)	GA (d)	
	mean	±1SD		mean	±1SD
44	154	5	66	213	10
45	157	5	67	217	10
46	159	5	68	220	10
47	161	5	69	224	10
48	163	5	70	227	11
49	166	6	71	231	11
50	168	6	72	234	11
51	171	6	73	238	11
52	173	6	74	241	11
53	176	7	75	245	11
54	178	7	76	249	11
55	181	7	77	252	11
56	183	8	78	256	11
57	186	8	79	260	10
58	189	8	80	264	10
59	192	8	81	267	10
60	195	9	82	271	10
61	198	9	83	275	10
62	201	9	84	278	10
63	204	9	85	282	10
64	207	10	86	285	10
65	210	10			

1-1-117 Middle Abdominal Diameter (MAD) EIK-NES

Reference: Eik-Nes SH, Jorgensen NP, Grottum P, Lokvik B "Normal range curves for the intrauterine growth of the fetal abdominal diameters" Submitted JCU

$$MAD = \frac{TAD + APAD}{2}$$

NOTE: If both distance measurements (TAD and APAD) are performed, the MAD is calculated.

MAD (cm)	GA (w+d)	MAD (cm)	GA (w+d)	MAD (cm)	GA (w+d)
3.60	16w0d	6.10	24w5d	8.60	31w5d
3.70	16w3d	6.20	25w0d	8.70	32w0d
3.80	16w6d	6.30	25w2d	8.80	32w2d
3.90	17w3d	6.40	25w4d	8.90	32w4d
4.00	17w6d	6.50	25w6d	9.00	32w6d
4.10	18w2d	6.60	26w1d	9.10	33w1d
4.20	18w4d	6.70	26w3d	9.20	33w4d
4.30	19w0d	6.80	26w5d	9.30	33w6d
4.40	19w3d	6.90	27w0d	9.40	34w1d
4.50	19w5d	7.00	27w2d	9.50	34w3d
4.60	20w1d	7.10	27w3d	9.60	34w6d
4.70	20w3d	7.20	27w5d	9.70	35w1d
4.80	20w5d	7.30	28w0d	9.80	35w3d
4.90	21w1d	7.40	28w2d	9.90	35w6d
5.00	21w3d	7.50	28w4d	10.00	36w1d
5.10	21w5d	7.60	28w6d	10.10	36w4d
5.20	22w0d	7.70	29w1d	10.20	37w0d
5.30	22w2d	7.80	29w3d	10.30	37w3d
5.40	22w5d	7.90	29w5d	10.40	37w6d
5.50	23w0d	8.00	30w0d	10.50	38w2d
5.60	23w2d	8.10	30w2d	10.60	38w5d
5.70	23w4d	8.20	30w4d	10.70	39w1d
5.80	23w6d	8.30	30w6d	10.80	39w5d
5.90	24w1d	8.40	31w1d		
6.00	24w3d	8.50	31w3d		

1-1-118 Middle Abdominal Diameter (MAD) eSnurra

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: mm
Output Unit: w(weeks)+d(days)
Min Range: 25 mm
Max Range: 60 mm

MAD (mm)	GA (w+d)	MAD (mm)	GA (w+d)
25	14w+1d	43	19w+0d
26	14w+3d	44	19w+1d
27	14w+5d	45	19w+3d
28	15w+0d	46	19w+4d
29	15w+2d	47	19w+6d
30	15w+4d	48	20w+1d
31	15w+6d	49	20w+3d
32	16w+1d	50	20w+5d
33	16w+3d	51	21w+0d
34	16w+6d	52	21w+3d
35	17w+1d	53	21w+5d
36	17w+2d	54	22w+0d
37	17w+4d	55	22w+2d
38	17w+6d	56	22w+5d
39	18w+1d	57	23w+0d
40	18w+2d	58	23w+3d
41	18w+4d	59	23w+5d
42	18w+5d	60	24w+0d

1-1-119 Middle Abdominal Diameter (MAD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

AD (cm)	GA (w + d)	AD (cm)	GA (w + d)	AD (cm)	GA (w + d)
1.8	12w0d	5.4	22w0d	9.0	33w1d
1.9	12w2d	5.5	22w2d	9.1	33w4d
2.0	12w4d	5.6	22w4d	9.2	33w6d
2.1	12w5d	5.7	22w6d	9.3	34w2d
2.2	13w0d	5.8	23w1d	9.4	34w4d
2.3	13w2d	5.9	23w3d	9.5	35w0d
2.4	13w4d	6.0	23w5d	9.6	35w2d
2.5	13w6d	6.1	24w0d	9.7	35w5d
2.6	14w1d	6.2	24w2d	9.8	36w0d
2.7	14w3d	6.3	24w4d	9.9	36w3d
2.8	14w5d	6.4	25w0d	10.0	36w5d
2.9	15w0d	6.5	25w2d	10.1	37w1d
3.0	15w1d	6.6	25w4d	10.2	37w3d
3.1	15w3d	6.7	25w6d	10.3	37w6d
3.2	15w5d	6.8	26w1d	10.4	38w2d
3.3	16w0d	6.9	26w3d	10.5	38w4d
3.4	16w2d	7.0	26w5d	10.6	39w0d
3.5	16w4d	7.1	27w0d	10.7	39w3d
3.6	16w6d	7.2	27w3d	10.8	39w6d
3.7	17w1d	7.3	27w5d	10.9	40w1d
3.8	17w3d	7.4	28w0d	11.0	40w4d
3.9	17w5d	7.5	28w2d	11.1	41w0d
4.0	18w0d	7.6	28w4d	11.2	41w3d
4.1	18w2d	7.7	29w0d	11.3	41w6d
4.2	18w4d	7.8	29w2d		
4.3	18w6d	7.9	29w4d		
4.4	19w1d	8.0	29w6d		
4.5	19w3d	8.1	30w2d		
4.6	19w5d	8.2	30w4d		
4.7	20w0d	8.3	30w6d		
4.8	20w2d	8.4	31w1d		
4.9	20w4d	8.5	31w4d		
5.0	20w6d	8.6	31w6d		
5.1	21w1d	8.7	32w1d		
5.2	21w3d	8.8	32w4d		
5.3	21w5d	8.9	32w6d		

1-1-120 Occipital Frontal Diameter (OFD) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

OFD (cm)	GA		OFD (cm)	GA	
	w	± d		w	± d
2.1	11	5	8.6	27	10
2.4	12	5	9.5	28	10
2.9	13	5	9.7	29	10
3.4	14	5	9.8	30	14
3.8	15	5	10.1	31	14
4.6	16	5	10.2	32	14
5.0	17	5	10.7	33	14
5.4	18	7	10.8	34	18
5.7	19	7	10.9	35	18
6.1	20	7	11.2	36	21
6.3	21	7	11.3	37	21
6.8	22	7	11.6	38	21
7.6	23	7	11.9	39	21
7.9	24	10	12.0	40	21
8.2	25	10	12.2	41	21
8.4	26	10			

1-1-121 Occipital Frontal Diameter (OFD) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101 No. 1, 1994, pages 35-43.

NOTE: OFD and GA Values are taken from Fetal Growth Table; OFD (50% values) are used as Input and GA as Output!

OFD (cm)	GA (Week)
Median	
2.62	12
2.97	13
3.58	14
3.86	15
4.39	16
4.72	17
5.29	18
5.81	19
6.10	20
6.66	21
6.88	22
7.32	23
7.90	24
8.22	25
8.68	26
9.08	27
9.48	28
9.96	29
10.16	30
10.55	31
10.68	32
10.98	33
11.09	34
11.24	35
11.72	36
11.67	37
11.74	38
11.80	39
12.07	40
12.41	41
12.06	42

1-1-122 Occipital Frontal Diameter (OFD) HANSMANN

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p. 431

OFD (cm)	GA (weeks)
3.10	14
3.80	15
4.10	16
4.60	17
5.00	18
5.40	19
5.80	20
6.30	21
6.70	22
7.20	23
7.60	24
8.00	25
8.40	26
8.80	27
9.10	28
9.50	29
9.80	30
10.00	31
10.30	32
10.50	33
10.70	34
10.90	35
11.10	36
11.20	37
11.30	38
11.40	39
11.50	40

1-1-123 Occipital Frontal Diameter (OFD) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J.C., Tack B., Bracken M., Cantraine F
"A longitudinal study of fetal head biometry"
American Journal of Perinatology; Volume 1; Number 2; January 1984

OFD (cm)	GA (weeks)	OFD (cm)	GA (weeks)
1.40	10	8.00	26
1.80	11	8.30	27
2.30	12	8.70	28
2.70	13	9.00	29
3.10	14	9.30	30
3.60	15	9.60	31
4.00	16	9.90	32
4.40	17	10.20	33
4.80	18	10.40	34
5.30	19	10.60	35
5.70	20	10.90	36
6.10	21	11.10	37
6.50	22	11.20	38
6.90	23	11.40	39
7.20	24	11.50	40
7.60	25		

1-1-124 Occipital Frontal Diameter (OFD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

OFD (cm)	GA (weeks)	OFD (cm)	GA (weeks)	OFD (cm)	GA (weeks)
2.4	12w0d	6.0	19w3d	9.6	29w3d
2.5	12w1d	6.1	19w5d	9.7	29w6d
2.6	12w2d	6.2	20w0d	9.8	30w1d
2.7	12w3d	6.3	20w1d	9.9	30w4d
2.8	12w4d	6.4	20w3d	10.0	30w6d
2.9	12w6d	6.5	20w5d	10.1	31w2d
3.0	13w0d	6.6	20w6d	10.2	31w5d
3.1	13w1d	6.7	21w1d	10.3	32w1d
3.2	13w3d	6.8	21w3d	10.4	32w4d
3.3	13w4d	6.9	21w4d	10.5	33w0d
3.4	13w6d	7.0	21w6d	10.6	33w3d
3.5	14w1d	7.1	22w1d	10.7	34w0d
3.6	14w2d	7.2	22w3d	10.8	34w4d
3.7	14w4d	7.3	22w5d	10.9	35w1d
3.8	14w5d	7.4	23w0d	11.0	35w6d
3.9	15w0d	7.5	23w2d	11.1	36w4d
4.0	15w1d	7.6	23w3d	11.2	37w2d
4.1	15w3d	7.7	23w5d	11.3	38w1d
4.2	15w4d	7.8	24w0d	11.4	39w0d
4.3	15w6d	7.9	24w2d	11.5	39w6d
4.4	16w0d	8.0	24w4d	11.6	40w6d
4.5	16w2d	8.1	24w6d		
4.6	16w3d	8.2	25w1d		
4.7	16w5d	8.3	25w3d		
4.8	16w6d	8.4	25w5d		
4.9	17w1d	8.5	26w0d		
5.0	17w2d	8.6	26w2d		
5.1	17w4d	8.7	26w5d		
5.2	17w5d	8.8	27w0d		
5.3	18w0d	8.9	27w2d		
5.4	18w1d	9.0	27w4d		
5.5	18w3d	9.1	27w6d		
5.6	18w4d	9.2	28w1d		
5.7	18w6d	9.3	28w3d		
5.8	19w0d	9.4	28w6d		
5.9	19w2d	9.5	29w1d		

1-1-125 Occipital Frontal Diameter (OFD) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: OFD and GA Values are taken from Fetal Growth Table; OFD (50% values) are used as Input and GA as Output!

OFD (cm) 50%	GA (weeks)	OFD (cm) 50%	GA (weeks)
3.00	12.5	9.00	27.5
3.20	13.0	9.10	28.0
3.40	13.5	9.30	28.5
3.50	14.0	9.40	29.0
3.70	14.5	9.60	29.5
3.90	15.0	9.70	30.0
4.10	15.5	9.90	30.5
4.30	16.0	10.00	31.0
4.50	16.5	10.10	31.5
4.70	17.0	10.20	32.0
5.00	17.5	10.40	32.5
5.20	18.0	10.50	33.0
5.40	18.5	10.60	33.5
5.60	19.0	10.70	34.0
5.80	19.5	10.80	34.5
6.00	20.0	10.90	35.0
6.30	20.5	11.00	35.5
6.50	21.0	11.00	36.0
6.70	21.5	11.10	36.5
6.90	22.0	11.20	37.0
7.10	22.5	11.20	37.5
7.30	23.0	11.30	38.0
7.50	23.5	11.30	38.5
7.70	24.0	11.40	39.0
7.90	24.5	11.40	39.5
8.10	25.0	11.40	40.0
8.20	25.5	11.40	40.5
8.40	26.0	11.50	41.0
8.60	26.5	11.50	41.5
8.80	27.0		

1-1-126 Occipital Frontal Diameter (OFD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: OFD and GA Values are taken from Fetal Growth Table; OFD (50% values) are used as Input and GA as Output!

OFD (cm)	GA (weeks)
3.90	14
4.20	15
4.60	16
5.00	17
5.40	18
5.80	19
6.20	20
6.70	21
7.10	22
7.50	23
7.90	24
8.30	25
8.70	26
9.10	27
9.50	28
9.80	29
10.20	30
10.50	31
10.70	32
11.00	33
11.20	34
11.30	35
11.50	36
11.60	37
11.60	38
11.60	39

1-1-127 Radius (RAD) JEANTY

NOTE: Radius and GA Values are taken from Fetal Growth Table; Radius (50% values) are used as Input and GA as Output! (Growth table see: Section 1-2-138 on page 2-280

Radius (mm)	GA (weeks)	Radius (mm)	GA (weeks)
5	11	37	26
7	12	39	27
10	13	40	28
13	14	42	29
15	15	43	30
18	16	44	31
20	17	45	32
22	18	46	33
24	19	47	34
27	20	48	35
29	21	48	36
31	22	49	37
32	23	49	38
34	24	50	39
36	25	50	40

1-1-128 Radius (RAD) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: Radius and GA Values are taken from Fetal Growth Table; Radius (50% values) are used as Input and GA as Output!

Radius (cm) 50%	GA (weeks)	Radius (cm) 50%	GA (weeks)
0.40	12.5	3.90	27.5
0.60	13.0	4.00	28.0
0.80	13.5	4.10	28.5
1.00	14.0	4.20	29.0
1.10	14.5	4.20	29.5
1.30	15.0	4.30	30.0
1.40	15.5	4.40	30.5
1.60	16.0	4.40	31.0
1.70	16.5	4.50	31.5
1.80	17.0	4.60	32.0
2.00	17.5	4.60	32.5
2.10	18.0	4.70	33.0
2.20	18.5	4.80	33.5
2.30	19.0	4.80	34.0
2.40	19.5	4.90	34.5
2.50	20.0	4.90	35.0
2.60	20.5	5.00	35.5
2.80	21.0	5.00	36.0
2.90	21.5	5.10	36.5
3.00	22.0	5.10	37.0
3.10	22.5	5.20	37.5
3.20	23.0	5.20	38.0
3.20	23.5	5.20	38.5
3.30	24.0	5.30	39.0
3.40	24.5	5.30	39.5
3.50	25.0	5.30	40.0
3.60	25.5	5.40	40.5
3.70	26.0	5.40	41.0
3.80	26.5	5.40	41.5
3.90	27.0		

1-1-129 Tibia (TIB) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J., "Estimation of Gestational Age from Measurements of Fetal Long Bones." J Ultrasound Med 3:75-79, 1984

Tibia (cm)	GA (weeks + days)			Tibia (cm)	GA (weeks + days)		
	5%	50%	95%		5%	50%	95%
1.00	10w4d	13w3d	16w2d	4.00	22w3d	25w2d	28w1d
1.10	10w6d	13w5d	16w4d	4.10	22w6d	25w5d	28w4d
1.20	11w1d	14w1d	17w0d	4.20	23w2d	26w1d	29w1d
1.30	11w4d	14w3d	17w2d	4.30	23w5d	26w4d	29w4d
1.40	11w6d	14w6d	17w5d	4.40	24w1d	27w1d	30w0d
1.50	12w1d	15w1d	18w0d	4.50	24w4d	27w4d	30w4d
1.60	12w4d	15w4d	18w3d	4.60	25w1d	28w0d	30w6d
1.70	13w0d	15w6d	18w6d	4.70	25w4d	28w4d	31w3d
1.80	13w2d	16w1d	19w1d	4.80	26w1d	29w0d	31w6d
1.90	13w5d	16w4d	19w4d	4.90	26w4d	29w3d	32w2d
2.00	14w1d	17w0d	19w6d	5.00	27w0d	29w6d	32w6d
2.10	14w4d	17w3d	20w2d	5.10	27w4d	30w3d	33w2d
2.20	14w6d	17w6d	20w5d	5.20	28w0d	30w6d	33w6d
2.30	15w1d	18w1d	21w1d	5.30	28w4d	31w3d	34w2d
2.40	15w4d	18w4d	21w3d	5.40	29w0d	31w6d	34w6d
2.50	16w0d	18w6d	21w6d	5.50	29w4d	32w3d	35w2d
2.60	16w3d	19w2d	22w1d	5.60	30w0d	32w6d	35w6d
2.70	16w6d	19w5d	22w4d	5.70	30w4d	33w3d	36w2d
2.80	17w1d	20w1d	23w0d	5.80	31w0d	33w6d	36w6d
2.90	17w4d	20w4d	23w4d	5.90	31w4d	34w3d	37w2d
3.00	18w1d	21w0d	23w6d	6.00	32w0d	34w6d	37w6d
3.10	18w4d	21w3d	24w2d	6.10	32w4d	35w3d	38w2d
3.20	18w6d	21w6d	24w5d	6.20	33w0d	35w6d	38w6d
3.30	19w2d	22w1d	25w1d	6.30	33w4d	36w4d	39w3d
3.40	19w5d	22w4d	25w4d	6.40	34w1d	37w0d	39w6d
3.50	20w1d	23w1d	26w0d	6.50	34w4d	37w4d	40w3d
3.60	20w4d	23w4d	26w3d	6.60	35w1d	38w0d	41w0d
3.70	21w0d	23w6d	26w6d	6.70	35w5d	38w4d	41w4d
3.80	21w4d	24w3d	27w2d	6.80	36w1d	39w1d	42w0d
3.90	21w6d	24w6d	27w5d	6.90	36w6d	39w5d	42w4d

1-1-130 Tibia (TIB) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: Tibia and GA Values are taken from Fetal Growth Table; Tibia (50% values) are used as Input and GA as Output!

Tibia (cm) 50%	GA (weeks)	Tibia (cm) 50%	GA (weeks)
0.70	12.5	4.60	27.5
0.90	13.0	4.70	28.0
1.00	13.5	4.80	28.5
1.20	14.0	4.90	29.0
1.40	14.5	5.00	29.5
1.50	15.0	5.10	30.0
1.70	15.5	5.10	30.5
1.80	16.0	5.20	31.0
2.00	16.5	5.30	31.5
2.10	17.0	5.40	32.0
2.20	17.5	5.50	32.5
2.40	18.0	5.60	33.0
2.50	18.5	5.60	33.5
2.60	19.0	5.70	34.0
2.80	19.5	5.80	34.5
2.90	20.0	5.90	35.0
3.00	20.5	5.90	35.5
3.10	21.0	6.00	36.0
3.30	21.5	6.10	36.5
3.40	22.0	6.20	37.0
3.50	22.5	6.20	37.5
3.60	23.0	6.30	38.0
3.70	23.5	6.30	38.5
3.80	24.0	6.40	39.0
4.00	24.5	6.40	39.5
4.10	25.0	6.50	40.0
4.20	25.5	6.50	40.5
4.30	26.0	6.60	41.0
4.40	26.5	6.60	41.5
4.50	27.0		

1-1-131 Transverse Abdominal Diameter (TAD) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

NOTE: TAD and GA Values are taken from Fetal Growth Table; TAD (50% values) are used as Input and GA as Output!

TAD (mm)	GA (Week)
13.50	11
17.00	12
20.56	13
24.00	14
27.69	15
31.21	16
34.70	17
38.31	18
41.69	19
45.21	20
48.34	21
51.57	22
54.72	23
57.88	24
61.00	25
64.00	26
67.11	27
70.27	28
73.27	29
76.17	30
79.25	31
82.10	32
84.78	33
87.55	34
90.00	35
92.36	36
94.81	37
97.00	38
99.33	39
101.64	40
103.00	41

1-1-132 Transverse Abdominal Diameter (TAD) MERZ

NOTE: TAD and GA Values are taken from Fetal Growth Table; TAD (50% values) are used as Input and GA as Output! (Growth table see: Section 1-2-144 on page 1-286)

NOTE: Values are copied from growth table.

TAD (cm) 50%	GA (weeks)	TAD (cm) 50%	GA (weeks)
2.00	12.5	7.10	27.5
2.20	13.0	7.30	28.0
2.40	13.5	7.50	28.5
2.50	14.0	7.60	29.0
2.70	14.5	7.80	29.5
2.90	15.0	7.90	30.0
3.10	15.5	8.10	30.5
3.20	16.0	8.20	31.0
3.40	16.5	8.40	31.5
3.60	17.0	8.50	32.0
3.80	17.5	8.70	32.5
3.90	18.0	8.80	33.0
4.10	18.5	9.00	33.5
4.30	19.0	9.10	34.0
4.40	19.5	9.30	34.5
4.60	20.0	9.40	35.0
4.80	20.5	9.60	35.5
5.00	21.0	9.70	36.0
5.10	21.5	9.80	36.5
5.30	22.0	10.00	37.0
5.50	22.5	10.10	37.5
5.60	23.0	10.20	38.0
5.80	23.5	10.40	38.5
6.00	24.0	10.50	39.0
6.10	24.5	10.60	39.5
6.30	25.0	10.70	40.0
6.50	25.5	10.80	40.5
6.60	26.0	10.90	41.0
6.80	26.5	11.00	41.5
7.00	27.0		

1-1-133 Transverse Cerebellar Diameter (CEREB) CHITTY

Reference: Altmann D.G.; Chitty L.S. "New charts for ultrasound dating of pregnancy". Ultrasound in Obstetrics and Gynecology Vol. 10: 174-191. 1997

Input Unit: cm
Output Unit: w (weeks)
Min Range: 1.30 cm
Max Range: 3.60 cm

Cereb (cm)	GA (weeks+days)		
	5%	50%	95%
1.30	13w1d	14w3d	16w0d
1.40	14w0d	15w2d	16w6d
1.50	14w6d	16w2d	17w5d
1.60	15w4d	17w0d	18w4d
1.70	16w3d	17w6d	19w3d
1.80	17w2d	18w5d	20w2d
1.90	18w0d	19w4d	21w1d
2.00	18w6d	20w3d	22w0d
2.10	19w4d	21w1d	22w6d
2.20	20w2d	22w0d	23w5d
2.30	21w0d	22w5d	24w4d
2.40	21w5d	23w4d	25w4d
2.50	22w2d	24w2d	26w3d
2.60	23w0d	25w0d	27w3d
2.70	23w4d	25w6d	28w2d
2.80	24w1d	26w4d	29w2d
2.90	24w5d	27w2d	30w2d
3.00	25w1d	28w0d	31w2d
3.10	25w5d	28w6d	32w2d
3.20	26w1d	29w4d	33w3d
3.30	26w4d	30w2d	34w4d
3.40	26w6d	31w0d	35w5d
3.50	27w2d	31w5d	36w6d
3.60	27w4d	32w3d	38w1d

1-1-134 Transverse Cerebellar Diameter (CEREB) GOLDSTEIN

Reference: Goldstein I.; Reece A.; Pilu G.; Bovicelli L.; Hobbins J.C "Cerebellar measurement with ultrasonography in the evaluation of fetal growth and development." Am J Obstet Gynecol; May 1987; 1065-1069

$$GA = 6{,}329 + 4{,}807 \times Cereb + 1{,}484 \times Cereb^2 - 0{,}2474 \times Cereb^3$$

Cereb (cm)	GA (weeks)	Cereb (cm)	GA (weeks)
1.00	12.4	3.30	29.5
1.10	13.1	3.40	30.1
1.20	13.8	3.50	30.7
1.30	14.5	3.60	31.3
1.40	15.3	3.70	31.9
1.50	16.0	3.80	32.4
1.60	16.8	3.90	33.0
1.70	17.6	4.00	33.5
1.80	18.3	4.10	33.9
1.90	19.1	4.20	34.4
2.00	19.9	4.30	34.8
2.10	20.7	4.40	35.1
2.20	21.5	4.50	35.5
2.30	22.2	4.60	35.8
2.40	23.0	4.70	36.0
2.50	23.8	4.80	36.2
2.60	24.5	4.90	36.4
2.70	25.3	5.00	36.5
2.80	26.0	5.10	36.6
2.90	26.7	5.20	36.7
3.00	27.4	5.30	36.7
3.10	28.1	5.40	36.6
3.20	28.8	5.50	36.5

1-1-135 Transverse Cerebellar Diameter (CEREB) HILL

Reference: Hill L M, Guzick D, Fries J, Hixson J, Rivello D, "The Transverse Cerebellar Diameter in Estimating Gestational Age in the Large for Gestational Age-Fetus." Obstetrics and Gynecology; Vol.75; No.6; June 1990; pages 981-985

$$GA = 6{,}37 + 5{,}4 \times Cereb + 0{,}78 \times Cereb^2 - 0{,}13 \times Cereb^3$$

Input Unit: cm

Output Unit: w (weeks)

Min Range: 1.40 cm

Max Range: 5.60 cm

Standard Deviation:

Age (weeks)	± SD (weeks)
12-17	0.5
18-23	0.9
24-29	1.0
30-35	1.2
36-	1.6

Cereb (cm)	GA (w+d / d		Cereb (cm)	GA (w+d / d		Cereb (cm)	GA (w+d / d	
	mean	±dec		mean	±dec		mean	±dec
1.40	15w1d	4d	2.80	24w6d	7d	4.20	33w3d	8d
1.50	15w6d	4d	2.90	25w4d	7d	4.30	33w6d	8d
1.60	16w4d	4d	3.00	26w1d	7d	4.40	34w3d	8d
1.70	17w1d	4d	3.10	26w6d	7d	4.50	34w6d	8d
1.80	17w6d	4d	3.20	27w4d	7d	4.60	35w2d	8d
1.90	18w4d	6d	3.30	28w1d	7d	4.70	35w5d	8d
2.00	19w2d	6d	3.40	28w6d	7d	4.80	36w1d	11d
2.10	20w0d	6d	3.50	29w3d	7d	4.90	36w4d	11d
2.20	20w5d	6d	3.60	30w0d	8d	5.00	36w6d	11d
2.30	21w3d	6d	3.70	30w4d	8d	5.10	37w1d	11d
2.40	22w1d	6d	3.80	31w1d	8d	5.20	37w4d	11d
2.50	22w6d	6d	3.90	31w6d	8d	5.40	38w0d	11d
2.60	23w4d	6d	4.00	32w2d	8d	5.50	38w2d	11d
2.70	24w1d	7d	4.10	32w6d	8d	5.60	38w4d	11d

1-1-136 Transverse Cerebellar Diameter (CEREB) HOBBINS

Reference: Documents by E-Mail of Hobbins

$$GA = 2{,}6649 + (1{,}0056 \times TCD) - (0{,}0064678 \times TCD^2)$$

Input Unit: mm
Output Unit: w (weeks)
Valid for 14 to 42week

1-1-137 Transverse Cerebellar Diameter (CEREB) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

NOTE: TCD and GA Values are taken from Fetal Growth Table; TCD (50% values) are used as Input and GA as Output!

TCD (cm)	GA (Week)
Median	
1.40	14
1.50	15
1.60	16
1.70	17
1.80	18
2.00	19
2.10	20
2.20	21
2.40	22
2.50	23
2.60	24
2.80	25
2.90	26
3.10	27
3.20	28
3.30	29
3.50	30
3.60	31
3.70	32
3.90	33
4.00	34
4.10	35
4.20	36
4.30	37
4.40	38
4.50	39

1-1-138 Transverse Trunk Diameter (TTD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986; pp.431

NOTE: concerning DICOM-SR:
TTD Value is transferred as TAD value (Transverse Abdominal Diameter)
(because no TTD item present in DICOM standard)

TTD (cm)	GA (weeks)
1.70	12
2.00	13
2.40	14
2.70	15
3.10	16
3.40	17
3.70	18
4.00	19
4.40	20
4.70	21
5.00	22
5.30	23
5.60	24
5.90	25
6.20	26
6.50	27
6.90	28
7.20	29
7.40	30
7.80	31
8.10	32
8.30	33
8.60	34
8.90	35
9.20	36
9.40	37
9.70	38
9.90	39
10.10	40
10.20	41

1-1-139 Ulna (ULNA) JEANTY

Reference: Jeanty P., Rodesch F., Delbeke D., Dumont J., "Estimation of Gestational Age from Measurements of Fetal Long Bones." J Ultrasound Med 3:75-79, 1984

Ulna (cm)	GA (weeks+days)			Ulna (cm)	GA (weeks+days)		
	5%	50%	95%		5%	50%	95%
1.00	10w1d	13w1d	16w1d	3.80	22w1d	25w1d	28w1d
1.10	10w4d	13w4d	16w4d	3.90	22w4d	25w4d	28w5d
1.20	10w6d	13w6d	16w6d	4.00	23w1d	26w1d	29w1d
1.30	11w1d	14w1d	17w2d	4.10	23w4d	26w5d	29w5d
1.40	11w4d	14w4d	17w5d	4.20	24w1d	27w1d	30w2d
1.50	11w6d	15w0d	18w0d	4.30	24w5d	27w5d	30w6d
1.60	12w2d	15w3d	18w3d	4.40	25w1d	28w2d	31w2d
1.70	12w5d	15w5d	18w6d	4.50	25w6d	28w6d	31w6d
1.80	13w1d	16w1d	19w1d	4.60	26w2d	29w3d	32w3d
1.90	13w4d	16w4d	19w4d	4.70	26w6d	29w6d	33w0d
2.00	13w6d	16w6d	20w0d	4.80	27w3d	30w4d	33w4d
2.10	14w2d	17w2d	20w3d	4.90	28w0d	31w1d	34w1d
2.20	14w5d	17w5d	20w6d	5.00	28w4d	31w4d	34w5d
2.30	15w1d	18w1d	21w1d	5.10	29w1d	32w1d	35w2d
2.40	15w4d	18w4d	21w4d	5.20	29w5d	32w6d	35w6d
2.50	16w0d	19w0d	22w1d	5.30	30w2d	33w3d	36w3d
2.60	16w3d	19w3d	22w4d	5.40	30w6d	34w0d	37w0d
2.70	16w6d	19w6d	22w6d	5.50	31w4d	34w4d	37w5d
2.80	17w2d	20w2d	23w3d	5.60	32w1d	35w1d	38w2d
2.90	17w5d	20w6d	23w6d	5.70	32w6d	35w6d	38w6d
3.00	18w1d	21w1d	24w2d	5.80	33w3d	36w3d	39w4d
3.10	18w4d	21w5d	24w6d	5.90	34w0d	37w1d	40w1d
3.20	19w1d	22w1d	25w1d	6.00	34w4d	37w5d	40w6d
3.30	19w4d	22w5d	25w5d	6.10	35w2d	38w2d	41w3d
3.40	20w1d	23w1d	26w1d	6.20	35w6d	39w0d	42w0d
3.50	20w4d	23w4d	26w5d	6.30	36w4d	39w4d	42w5d
3.60	21w1d	24w1d	27w1d	6.40	37w1d	40w2d	43w2d
3.70	21w4d	24w4d	27w5d				

1-1-140 Ulna (ULNA) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

NOTE: Ulna and GA Values are taken from Fetal Growth Table; Ulna (50% values) are used as Input and GA as Output!

Ulna (cm) 50%	GA (weeks)	Ulna (cm) 50%	GA (weeks)
0.50	12.5	4.40	27.5
0.80	13.0	4.50	28.0
1.00	13.5	4.60	28.5
1.10	14.0	4.70	29.0
1.30	14.5	4.80	29.5
1.50	15.0	4.90	30.0
1.60	15.5	4.90	30.5
1.80	16.0	5.00	31.0
1.90	16.5	5.10	31.5
2.10	17.0	5.20	32.0
2.20	17.5	5.30	32.5
2.30	18.0	5.30	33.0
2.50	18.5	5.40	33.5
2.60	19.0	5.50	34.0
2.70	19.5	5.50	34.5
2.80	20.0	5.60	35.0
3.00	20.5	5.70	35.5
3.10	21.0	5.70	36.0
3.20	21.5	5.80	36.5
3.30	22.0	5.80	37.0
3.40	22.5	5.90	37.5
3.50	23.0	5.90	38.0
3.60	23.5	6.00	38.5
3.70	24.0	6.00	39.0
3.80	24.5	6.10	39.5
3.90	25.0	6.10	40.0
4.00	25.5	6.20	40.5
4.10	26.0	6.20	41.0
4.20	26.5	6.20	41.5
4.30	27.0		

Section 1-2
Gestational (Fetal) Growth

CAUTION **Gestational Age / FW tables or equations are NOT the same as Gestational (Fetal) Growth / FW Growth tables or equations!**

NOTICE **Gestational (Fetal) Growth / FW Growth:**

These are normal ranges for sonographically determined variables **as a function of gestational age**. Therefore, the Last Menstruation Period (LMP) must be entered in the Patient ID Info first, otherwise the Growth Curve [Graph] won't be shown in the Report.

1-2-1 Abdominal Circumference (AC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open.home.htm
Date: December 2003

Input Unit: GA (week)
Output Unit: AC mean (cm) ± SD (cm)
Min Range: 11 weeks
Max Range: 41 weeks

GA (week)	AC (cm)		GA (week)	AC (cm)	
	mean	± 2SD		mean	± 2SD
11	5.2	1.0	27	23.0	2.5
12	6.3	1.0	28	24.2	2.5
13	7.4	1.0	29	25.9	2.5
14	8.4	1.0	30	26.2	2.5
15	9.6	1.0	31	27.2	3.0
16	10.6	1.0	32	28.3	3.0
17	12.0	1.5	33	29.4	3.0
18	13.1	1.5	34	30.5	3.0
19	14.0	1.5	35	31.5	3.0
20	15.1	1.5	36	32.5	3.5
21	16.4	2.0	37	33.3	3.5
22	17.6	2.0	38	34.2	3.5
23	18.6	2.0	39	35.6	3.5
24	20.1	2.0	40	36.2	3.5
25	21.2	2.0	41	36.7	3.5
26	22.3	2.5			

1-2-2 Abdominal Circumference (AC) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil , Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 15 weeks
Max Range: 40 weeks

GA (Week)	AC (mm)				
	3%	10%	50%	90%	97%
15	80.70	85.30	95.00	104.40	108.80
16	91.30	96.10	106.40	116.80	121.60
17	101.70	106.80	118.00	129.00	134.00
18	111.80	117.40	129.20	141.00	146.60
19	122.00	128.00	140.40	153.00	158.80
20	132.00	138.00	151.40	164.70	171.00
21	141.60	148.20	162.30	176.30	183.00
22	151.40	158.20	173.00	187.80	194.70
23	160.90	168.20	183.60	199.00	206.30
24	170.20	177.80	194.00	210.30	218.00
25	179.30	187.30	204.40	221.30	229.30
26	188.40	196.70	214.50	232.30	240.60
27	197.30	206.00	224.50	243.00	251.60
28	206.20	215.10	234.40	253.60	262.60
29	214.70	224.00	244.00	264.00	273.30
30	223.20	232.80	253.60	274.20	283.70
31	231.60	241.60	263.00	284.20	294.40
32	239.70	250.00	272.20	294.30	304.60
33	247.80	258.40	281.20	304.00	314.80
34	255.60	266.70	290.20	313.80	324.80
35	263.20	274.70	298.80	323.30	334.50
36	271.00	282.60	307.40	332.50	344.30
37	278.30	290.30	316.00	341.70	353.80
38	285.60	298.00	324.70	350.70	363.00
39	292.70	305.30	332.40	359.60	372.20
40	298.00	311.00	339.00	367.00	380.00

1-2-3 Abdominal Circumference (AC) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 3. Abdominal measurements", Br.J.Obstet.Gynaecol. Vol. 101, 1994, pages 125-131

GA (week)	AC (cm)		
	-1SD	Median	+1SD
12	4.77	5.89	7.02
13	5.87	7.09	8.30
14	6.97	8.27	9.57
15	8.06	9.45	10.83
16	9.15	10.62	12.09
17	10.22	11.78	13.33
18	11.29	12.93	14.57
19	12.35	14.08	15.81
20	13.40	15.21	17.03
21	14.44	16.34	18.24
22	15.47	17.46	19.44
23	16.49	18.56	20.63
24	17.50	19.66	21.81
25	18.50	20.74	22.98
26	19.48	21.81	24.14
27	20.45	22.87	25.28
28	21.41	23.91	26.41
29	22.36	24.94	27.53
30	23.29	25.96	28.63
31	24.20	26.96	29.72
32	25.10	27.95	30.80
33	25.99	28.92	31.85
34	26.86	29.88	32.90
35	27.71	30.82	33.92
36	28.55	31.74	34.93
37	29.37	32.64	35.92
38	30.17	33.53	36.89
39	30.95	34.40	37.85
40	31.72	35.25	38.78
41	32.46	36.08	39.70
42	33.18	36.89	40.60

1-2-4 Abdominal Circumference (AC) CHITTY (derived)

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 3. Abdominal measurements", Br.J.Obstet.Gynaecol. Vol. 101 No. 2, 1994, pages 125-131

NOTE: AC derived from TAD/APAD

Input Unit: w (week)
Output Unit: mm
Min Range: 12,0 weeks
Max Range: 42,0 weeks

GA (Week)	AC (cm)		
	5th centile	50th centile	95th centile
12	49.0	55.8	62.6
13	59.6	67.4	75.2
14	70.1	78.9	87.7
15	80.5	90.3	100.1
16	90.9	101.6	112.4
17	101.1	112.9	124.7
18	111.3	124.1	136.9
19	121.5	135.2	149.0
20	131.5	146.2	161.0
21	141.4	157.1	172.9
22	151.3	168.0	184.7
23	161.0	178.7	196.4
24	170.6	189.3	208.0
25	180.1	199.8	219.5
26	189.5	210.2	230.8
27	198.8	220.4	242.1
28	207.9	230.6	253.2
29	216.9	240.5	264.2
30	225.8	250.4	275.0
31	234.5	260.1	285.7
32	243.1	269.7	296.3
33	251.5	279.1	306.7
34	259.8	288.4	317.0
35	267.9	297.5	327.0
36	275.8	306.4	337.0
37	283.6	315.1	346.7
38	291.2	323.7	356.3
39	298.6	332.1	365.7
40	305.8	340.4	374.9
41	312.9	348.4	383.9
42	319.7	356.2	392.7

1-2-5 Abdominal Circumference (AC) HADLOCK

Reference: Hadlock F.P., Deter R.L., Harrist R.B., Park S.K.
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$AC = -13{,}3 + 1{,}61 \times GA - 0{,}00998 \times GA^2$$

Input Unit: w (week)

Output Unit: cm

Min Range: 12.0 weeks

Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 1.34 cm

corresponds to: 16%…. 84% (-1,34cm… +1,34cm)

GA (weeks)	AC (cm)	GA (weeks)	AC (cm)
12.0	4.60	26.5	22.40
12.5	5.30	27.0	23.00
13.0	6.00	27.5	23.50
13.5	6.70	28.0	24.00
14.0	7.30	28.5	24.60
14.5	8.00	29.0	25.10
15.0	8.60	29.5	25.60
15.5	9.30	30.0	26.10
16.0	9.90	30.5	26.60
16.5	10.60	31.0	27.10
17.0	11.20	31.5	27.60
17.5	11.90	32.0	28.10
18.0	12.50	32.5	28.60
18.5	13.10	33.0	29.10
19.0	13.70	33.5	29.50
19.5	14.40	34.0	30.00
20.0	15.00	34.5	30.50
20.5	15.60	35.0	30.90
21.0	16.20	35.5	31.40
21.5	16.80	36.0	31.80
22.0	17.40	36.5	32.30
22.5	17.90	37.0	32.70
23.0	18.50	37.5	33.20
23.5	19.10	38.0	33.60
24.0	19.70	38.5	34.00
24.5	20.20	39.0	34.40
25.0	20.80	39.5	34.80
25.5	21.30	40.0	35.30
26.0	21.90		

1-2-6 Abdominal Circumference (AC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann)"Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

GA (weeks	AC (cm)
12	5.30
13	6.30
14	7.50
15	8.50
16	9.70
17	10.70
18	11.60
19	12.60
20	13.50
21	14.50
22	15.50
23	16.50
24	17.30
25	18.30
26	19.10
27	20.20
28	21.10
29	22.20
30	23.00
31	24.00
32	24.90
33	25.80
34	26.80
35	27.70
36	28.70
37	29.60
38	30.60
39	31.50
40	32.00

1-2-7 Abdominal Circumference (AC) JACOT-GUILLARMOD

Reference: Jacot-Guillarmod M., Vial Y., Hohlfeld P., Courbes de Biomètrie, Lausanne CHUV 2003

Input Unit: w (weeks)
Output Unit: mm
Min Range: 15.0 weeks
Max Range: 41.0 weeks

AC (weeks)	AC(mm)		
	5%	50%	95%
15	86.0	98.4	111.3
16	96.0	109.2	123.1
17	106.0	120.0	135.0
18	116.1	130.9	146.9
19	126.3	141.9	158.9
20	136.5	153.0	170.9
21	146.7	164.0	182.8
22	156.8	175.0	194.7
23	167.0	186.0	206.6
24	177.0	196.9	218.3
25	186.9	207.8	230.0
26	196.7	218.5	241.5
27	206.4	229.1	252.9
28	215.9	239.5	264.2
29	225.2	249.7	275.2
30	234.2	259.7	286.0
31	243.0	269.5	296.6
32	251.5	278.9	306.9
33	259.7	288.1	317.0
34	267.6	297.0	326.8
35	275.1	305.5	336.2
36	282.3	313.7	345.3
37	289.0	321.4	354.1
38	295.3	328.8	362.4
39	301.2	335.7	370.4
40	306.5	342.1	377.9
41	311.4	348.0	385.0

1-2-8 Abdominal Circumference (AC) JEANTY

Reference: *Jeanty P., Cousaert E., Cantraine F.*
"Normal Growth of the Abdominal Perimeter"
American Journal of Perinatology; Volume1; Number 2; January 1984; pages 129-135

$$AC = 2{,}9055 + 0{,}39388 \times GA + 0{,}033897 \times GA^2 - 0{,}00055459 \times GA^3$$

Input Unit: w (week)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	AC (cm)		
	5%	50%	95%
12	3.50	5.70	8.00
13	4.50	6.70	9.00
14	5.50	7.70	10.00
15	6.50	8.80	11.00
16	7.60	9.80	12.00
17	8.60	10.90	13.10
18	9.70	11.90	14.20
19	10.80	13.00	15.20
20	11.90	14.10	16.30
21	12.90	15.20	17.40
22	14.00	16.30	18.50
23	15.10	17.30	19.60
24	16.20	18.40	20.60
25	17.20	19.50	21.70
26	18.30	20.50	22.70
27	19.30	21.50	23.80
28	20.30	22.50	24.80
29	21.30	23.50	25.70
30	22.20	24.40	26.70
31	23.10	25.40	27.60
32	24.00	26.20	28.50
33	24.80	27.10	29.30
34	25.60	27.90	30.10
35	26.40	28.60	30.90
36	27.10	29.30	31.60
37	27.80	30.00	32.20
38	28.30	30.60	32.80
39	28.90	31.10	33.30
40	29.40	31.60	33.80

1-2-9 Abdominal Circumference (AC) JOHNSEN

Reference: Johnsen SL, Wilsgaard T, Rasmussen S, Soliien R, Kiserud T
Longitudinal reference charts for fetal head, abdomen and femur
European Journal of Obstetrics & Gynecology and Reproductive Biology 127 (2006) 172–185

Input Unit: w (week)
Output Unit: mm
Min Range: 10 weeks
Max Range: 40+6 weeks+days

GA (weeks)	AC (mm)		
	10%	50%	90%
10	31	37	44
11	41	47	55
12	51	58	67
13	61	69	79
14	72	81	91
15	83	93	103
16	94	104	116
17	105	116	128
18	116	128	141
19	128	140	153
20	139	151	165
21	150	163	177
22	160	174	189
23	171	186	201
24	182	197	213
25	192	208	225
26	203	219	236
27	213	230	248
28	223	240	259
29	233	251	270
30	243	261	281
31	252	272	292
32	262	282	303
33	271	292	314
34	280	302	325
35	290	312	335
36	299	321	346
37	308	331	356
38	316	341	367
39	325	350	377
40	334	360	387
40+6	341	368	396

1-2-10 Abdominal Circumference (AC) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee" Ultrasound Fetal measurement standardization & Japanese standard proposals" J Med Ultrasonics Vol. 28 No.5 (2001)

Input Unit: w (weeks)
Output Units: cm
Min Range: 16 weeks
Max Range: 42 weeks

NOTE: For Voluson i/e BT07 (+/-2 SD):

Age (weeks	AC (cm)			Age (weeks	AC (cm)		
	-2 SD	Mean	+2 SD		-2 SD	Mean	+2 SD
16	8.55	10.5	12.36	30	21.12	24.4	27.59
17	9.49	11.5	13.49	31	21.92	25.2	28.58
18	10.43	12.5	14.62	32	22.70	26.1	29.55
19	11.37	13.6	15.74	33	23.45	27.0	30.50
20	12.30	14.6	16.87	34	24.19	27.8	31.42
21	13.22	15.6	17.98	35	24.89	28.6	32.32
22	14.15	16.6	19.09	36	25.58	29.4	33.19
23	15.06	17.6	20.20	37	26.23	30.1	34.04
24	15.96	18.6	21.29	38	26.86	30.9	34.85
25	16.86	19.6	22.38	39	27.45	31.5	35.64
26	17.74	20.6	23.45	40	28.01	32.2	36.39
27	18.61	21.6	24.51	41	28.54	32.8	37.11
28	19.46	22.5	25.55	42	29.04	33.4	37.79
29	20.30	23.4	26.58				

NOTE: For all other Voluson i/e Products (+/-1,5 SD)

Age (weeks	AC (cm)			Age (weeks	AC (cm)		
	-1.5 SD	Mean	+1.5 SD		-1.5 SD	Mean	+1.5 SD
16	9.03	10.5	11.89	30	21.92	24.4	26.78
17	9.99	11.5	12.99	31	22.75	25.2	27.75
18	10.95	12.5	14.09	32	23.55	26.1	28.69
19	11.91	13.6	15.20	33	24.33	27.0	29.62
20	12.87	14.6	16.29	34	25.09	27.8	30.52
21	13.82	15.6	17.39	35	25.82	28.6	31.39
22	14.76	16.6	18.48	36	26.53	29.4	32.24
23	15.70	17.6	19.56	37	27.21	30.1	33.06
24	16.63	18.6	20.63	38	27.86	30.9	33.85
25	17.55	19.6	21.69	39	28.47	31.5	34.61
26	18.45	20.6	22.73	40	29.06	32.2	35.34
27	19.34	21.6	23.77	41	29.61	32.8	36.04
28	20.22	22.5	24.79	42	30.13	33.4	36.70
29	21.08	23.4	25.79	30	21.92	24.4	26.78

1-2-11 Abdominal Circumference (AC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks	AC (cm)		
	5%	50%	95%
12	4.53	5.66	6.79
13	5.61	6.82	8.03
14	6.69	7.98	9.27
15	7.76	9.13	10.50
16	8.83	10.27	11.72
17	9.88	11.40	12.93
18	10.93	12.53	14.13
19	11.97	13.64	15.32
20	12.99	14.75	16.51
21	14.01	15.85	17.68
22	15.02	16.93	18.84
23	16.01	18.00	20.00
24	16.99	19.06	21.13
25	17.96	20.11	22.26
26	18.92	21.15	23.37
27	19.87	22.17	24.48
28	20.80	23.18	25.56
29	21.71	24.17	26.63
30	22.61	25.15	27.69
31	23.50	26.11	28.73
32	24.36	27.06	29.76
33	25.22	27.99	30.77
34	26.05	28.90	31.76
35	26.87	29.80	32.73
36	27.67	30.68	33.69
37	28.45	31.54	34.62
38	29.21	32.38	35.54
39	29.95	33.20	36.44
40	30.68	34.00	37.32
41	31.38	34.78	38.18
42	32.06	35.53	39.01

1-2-12 Abdominal Circumference (AC) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

GA (Age)	AC (mm)			GA (Age)	AC (mm)			GA (Age)	AC (mm)		
	10%	50%	90%		10%	50%	90%		10%	50%	90%
12w0d	47.6	59.3	68.3	22w1d	163.3	178.2	194.7	32w2d	269.5	290.1	310.0
12w1d	49.2	60.8	69.9	22w2d	164.9	179.9	196.4	32w3d	270.9	291.5	311.5
12w2d	50.8	62.3	71.6	22w3d	166.4	181.6	198.1	32w4d	272.3	292.9	313.0
12w3d	52.4	63.8	73.2	22w4d	167.9	183.2	199.8	32w5d	273.6	294.3	314.5
12w4d	54.0	65.4	74.9	22w5d	169.5	184.9	201.5	32w6d	275.0	295.7	316.0
12w5d	55.7	66.9	76.5	22w6d	171.0	186.5	203.3	33w0d	276.3	297.0	317.5
12w6d	57.3	68.5	78.2	23w0d	172.5	188.1	204.9	33w1d	277.6	298.4	318.9
13w0d	58.9	70.0	79.8	23w1d	174.0	189.8	206.6	33w2d	278.9	299.8	320.3
13w1d	60.6	71.6	81.5	23w2d	175.5	191.4	208.3	33w3d	280.2	301.1	321.8
13w2d	62.2	73.2	83.2	23w3d	177.0	193.1	210.0	33w4d	281.5	302.5	323.2
13w3d	63.9	74.7	84.9	23w4d	178.5	194.7	211.7	33w5d	282.8	303.8	324.6
13w4d	65.5	76.3	86.6	23w5d	180.0	196.4	213.4	33w6d	284.0	305.1	326.0
13w5d	67.2	77.9	88.3	23w6d	181.4	198.0	215.1	34w0d	285.3	306.4	327.3
13w6d	68.9	79.6	90.0	24w0d	182.9	199.7	216.8	34w1d	286.5	307.6	328.7
14w0d	70.6	81.2	91.7	24w1d	184.4	201.3	218.5	34w2d	287.7	308.9	330.0
14w1d	72.2	82.8	93.5	24w2d	185.8	202.9	220.2	34w3d	288.9	310.2	331.3
14w2d	73.9	84.5	95.2	24w3d	187.3	204.6	221.9	34w4d	290.0	311.4	332.6
14w3d	75.6	86.2	97.0	24w4d	188.7	206.2	223.6	34w5d	291.2	312.7	333.9
14w4d	77.3	87.8	98.7	24w5d	190.2	207.8	225.2	34w6d	292.4	313.9	335.2
14w5d	79.0	89.5	100.5	24w6d	191.6	209.5	226.9	35w0d	293.5	315.1	336.5
14w6d	80.7	91.2	102.3	25w0d	193.1	211.1	228.6	35w1d	294.6	316.4	337.8
15w0d	82.4	92.9	104.0	25w1d	194.6	212.7	230.3	35w2d	295.7	317.6	339.0
15w1d	84.1	94.6	105.8	25w2d	196.0	214.3	231.9	35w3d	296.8	318.8	340.3
15w2d	85.8	96.3	107.6	25w3d	197.5	216.0	233.6	35w4d	297.8	320.0	341.5
15w3d	87.5	98.0	109.4	25w4d	198.9	217.6	235.2	35w5d	298.9	321.2	342.8
15w4d	89.2	99.7	111.2	25w5d	200.4	219.2	236.9	35w6d	299.9	322.4	344.0
15w5d	90.9	101.4	113.0	25w6d	201.9	220.8	238.6	36w0d	301.0	323.6	345.2
15w6d	92.6	103.2	114.8	26w0d	203.4	222.4	240.2	36w1d	302.0	324.8	346.4
16w0d	94.3	104.9	116.6	26w1d	204.8	224.0	241.9	36w2d	303.0	326.0	347.6
16w1d	96.0	106.6	118.4	26w2d	206.3	225.6	243.5	36w3d	304.0	327.2	348.8
16w2d	97.6	108.3	120.3	26w3d	207.8	227.2	245.2	36w4d	304.9	328.4	350.0
16w3d	99.3	110.0	122.1	26w4d	209.3	228.8	246.8	36w5d	305.9	329.5	351.2
16w4d	100.9	111.8	123.9	26w5d	210.7	230.4	248.4	36w6d	306.8	330.7	352.4
16w5d	102.6	113.5	125.7	26w6d	212.2	232.0	250.1	37w0d	307.8	331.9	353.5

GA (Age)	AC (mm)			GA (Age)	AC (mm)			GA (Age)	AC (mm)		
	10%	50%	90%		10%	50%	90%		10%	50%	90%
16w6d	104.2	115.2	127.6	27w0d	213.7	233.6	251.7	37w1d	308.7	333.0	354.7
17w0d	105.8	116.9	129.4	27w1d	215.2	235.2	253.4	37w2d	309.6	334.2	355.8
17w1d	107.5	118.6	131.2	27w2d	216.7	236.7	255.0	37w3d	310.5	335.4	357.0
17w2d	109.1	120.3	133.1	27w3d	218.2	238.3	256.6	37w4d	311.3	336.5	358.1
17w3d	110.7	122.1	134.9	27w4d	219.7	239.9	258.2	37w5d	312.2	337.7	359.2
17w4d	112.3	123.8	136.7	27w5d	221.3	241.4	259.8	37w6d	313.0	338.9	360.4
17w5d	113.9	125.5	138.6	27w6d	222.8	243.0	261.5	38w0d	313.8	340.1	361.5
17w6d	115.5	127.2	140.4	28w0d	224.3	244.6	263.1	38w1d	314.6	341.3	362.6
18w0d	117.1	128.9	142.3	28w1d	225.8	246.1	264.7	38w2d	315.4	342.4	363.7
18w1d	118.7	130.7	144.1	28w2d	227.4	247.7	266.3	38w3d	316.2	343.6	364.9
18w2d	120.3	132.4	146.0	28w3d	228.9	249.2	267.9	38w4d	317.0	344.9	366.0
18w3d	121.9	134.1	147.8	28w4d	230.4	250.8	269.5	38w5d	317.7	346.1	367.1
18w4d	123.5	135.8	149.7	28w5d	232.0	252.3	271.1	38w6d	318.5	347.3	368.3
18w5d	125.1	137.6	151.5	28w6d	233.5	253.9	272.7	39w0d	319.2	348.6	369.5
18w6d	126.7	139.3	153.4	29w0d	235.1	255.4	274.3	39w1d	319.9	349.8	370.7
19w0d	128.3	141.0	155.2	29w1d	236.6	257.0	275.9	39w2d	320.7	351.1	371.9
19w1d	129.9	142.7	157.1	29w2d	238.1	258.5	277.5	39w3d	321.4	352.4	373.1
19w2d	131.5	144.4	158.9	29w3d	239.7	260.1	279.1	39w4d	322.1	353.7	374.3
19w3d	133.1	146.1	160.8	29w4d	241.2	261.6	280.6	39w5d	322.8	355.0	375.5
19w4d	134.7	147.9	162.6	29w5d	242.8	263.2	282.2	39w6d	323.5	356.3	376.8
19w5d	136.3	149.6	164.4	29w6d	244.3	264.7	283.8	40w0d	324.2	357.7	378.1
19w6d	137.9	151.3	166.3	30w0d	245.9	266.3	285.4	40w1d	324.9	359.0	379.4
20w0d	139.5	153.0	168.1	30w1d	247.4	267.8	286.9	40w2d	325.6	360.4	380.7
20w1d	141.1	154.7	169.9	30w2d	248.9	269.3	288.5	40w3d	326.3	361.7	382.1
20w2d	142.7	156.4	171.7	30w3d	250.4	270.9	290.0	40w4d	326.9	363.1	383.4
20w3d	144.3	158.1	173.6	30w4d	252.0	272.4	291.6	40w5d	327.6	364.5	384.8
20w4d	145.9	159.8	175.4	30w5d	253.5	273.9	293.1	40w6d	328.2	365.9	386.1
20w5d	147.5	161.5	177.1	30w6d	255.0	275.4	294.7	41w0d	328.8	367.2	387.5
20w6d	149.1	163.1	178.9	31w0d	256.5	276.9	296.2	41w1d	329.4	368.6	388.8
21w0d	150.7	164.8	180.7	31w1d	258.0	278.4	297.8	41w2d	330.0	370.0	390.2
21w1d	152.3	166.5	182.5	31w2d	259.5	279.9	299.3	41w3d	330.5	371.3	391.5
21w2d	153.9	168.2	184.3	31w3d	261.0	281.4	300.9	41w4d	331.1	372.7	392.9
21w3d	155.4	169.9	186.0	31w4d	262.4	282.8	302.4	41w5d	331.6	374.1	394.2
21w4d	157.0	171.6	187.8	31w5d	263.9	284.3	303.9	41w6d	332.2	375.4	395.6
21w5d	158.6	173.2	189.5	31w6d	265.3	285.7	305.5	42w0d	332.7	376.8	396.9
21w6d	160.2	174.9	191.3	32w0d	266.7	287.2	307.0				
22w0d	161.8	176.6	193.0	32w1d	268.1	288.6	308.5				

1-2-13 Abdominal Circumference (AC) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	AC (cm)			GA (weeks)	AC (cm)		
	5%	50%	95%		5%	50%	95%
12.5	5.00	6.20	7.40	27.5	20.20	22.20	24.20
13.0	5.50	6.70	8.00	28.0	20.70	22.70	24.70
13.5	6.00	7.30	8.50	28.5	21.20	23.20	25.20
14.0	6.50	7.80	9.10	29.0	21.70	23.70	25.70
14.5	7.10	8.30	9.60	29.5	22.10	24.20	26.30
15.0	7.60	8.90	10.20	30.0	22.60	24.70	26.80
15.5	8.10	9.40	10.80	30.5	23.10	25.20	27.30
16.0	8.60	10.00	11.40	31.0	23.50	25.70	27.80
16.5	9.10	10.50	11.90	31.5	24.00	26.20	28.30
17.0	9.60	11.10	12.50	32.0	24.40	26.60	28.80
17.5	10.20	11.60	13.10	32.5	24.90	27.10	29.30
18.0	10.70	12.20	13.60	33.0	25.30	27.60	29.80
18.5	11.20	12.70	14.20	33.5	25.80	28.00	30.30
19.0	11.70	13.20	14.80	34.0	26.20	28.50	30.80
19.5	12.20	13.80	15.30	34.5	26.60	28.90	31.30
20.0	12.70	14.30	15.90	35.0	27.00	29.40	31.70
20.5	13.30	14.90	16.50	35.5	27.50	29.80	32.20
21.0	13.80	15.40	17.00	36.0	27.90	30.30	32.70
21.5	14.30	15.90	17.60	36.5	28.30	30.70	33.10
22.0	14.80	16.50	18.10	37.0	28.70	31.10	33.60
22.5	15.30	17.00	18.70	37.5	29.00	31.50	34.00
23.0	15.80	17.50	19.30	38.0	29.40	31.90	34.40
23.5	16.30	18.10	19.80	38.5	29.80	32.30	34.80
24.0	16.80	18.60	20.40	39.0	30.10	32.70	35.20
24.5	17.30	19.10	20.90	39.5	30.50	33.10	35.60
25.0	17.80	19.60	21.50	40.0	30.80	33.40	36.00
25.5	18.30	20.20	22.00	40.5	31.10	33.80	36.40
26.0	18.80	20.70	22.60	41.0	31.40	34.10	36.70
26.5	19.30	21.20	23.10	41.5	31.70	34.30	37.00
27.0	19.80	21.70	23.60				

1-2-14 Abdominal Circumference (AC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	AC (cm)		
	5th centile	Median	95th centile
14	8.00	9.00	10.20
15	8.80	9.90	11.20
16	9.60	10.80	12.20
17	10.50	11.80	13.30
18	11.40	12.80	14.40
19	12.30	13.90	15.60
20	13.30	14.90	16.80
21	14.30	16.10	18.10
22	15.30	17.20	19.30
23	16.30	18.30	20.60
24	17.40	19.50	21.90
25	18.40	20.70	23.30
26	19.50	21.90	24.60
27	20.50	23.10	25.90
28	21.60	24.30	27.20
29	22.60	25.40	28.50
30	23.70	26.60	29.80
31	24.60	27.70	31.00
32	25.60	28.70	32.20
33	26.50	29.70	33.40
34	27.40	30.70	34.50
35	28.20	31.60	35.50
36	28.90	32.40	36.40
37	29.50	33.20	37.20
38	30.20	33.90	38.00
39	30.70	34.50	38.70

1-2-15 Abdominal Circumference (AC) SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Input Unit:	weeks + days	Min Range:	12 weeks 0 days
Output Unit:	mm	Max Range:	42 weeks 0 days

NOTE: Table used up to Voluson i/e BT07

Used for Graph Display

GA (weeks)	AC (cm)			GA (weeks)	AC (cm)		
	-1.64SD	Mean	+1.64SD		-1.64SD	Mean	+1.64SD
16	9.30	10.90	12.50	30	22.00	24.70	27.30
17	10.30	12.00	13.60	31	22.80	25.60	28.30
18	11.20	13.00	14.70	32	23.50	26.50	29.20
19	12.20	14.00	15.80	33	24.30	27.30	30.10
20	13.10	15.10	16.90	34	25.00	28.10	31.00
21	14.00	16.10	18.00	35	25.70	28.90	31.90
22	15.00	17.10	19.10	36	26.40	29.70	32.70
23	15.90	18.10	20.20	37	27.00	30.40	33.50
24	16.80	19.10	21.20	38	27.60	31.10	34.30
25	17.70	20.10	22.30	39	28.20	31.80	35.00
26	18.60	21.00	23.30	40	28.80	32.40	35.70
27	19.50	22.00	24.40	41	29.30	33.00	36.40
28	20.30	22.90	25.40	42	29.70	33.60	37.00
29	21.10	23.80	26.40				

NOTE: Table used at Voluson i/e BT09 and upwards

Used for SD Display (on system ± 1.64SD is used)

$$\pm 1SD = 0{,}068 \bullet GA \bullet 10^{-1} - 0{,}19$$

(see Table 1 in Reference above) .... GA in days, 1SD in cm
The SD values in the table below are calculated using the formula above.

GA (w+d)	AC (cm)		GA (w+d)	AC (cm)		GA (w+d)	AC (cm)	
	mean	± 1SD		mean	± 1SD		mean	± 1SD
15+3	10	0.5	23+3	18	0.9	31+6	26	1.3
16+4	11	0.6	24+3	19	1.0	33+1	27	1.4
17+4	12	0.6	25+3	20	1.0	34+2	28	1.4
18+4	13	0.7	26+3	21	1.1	35+4	29	1.5
19+4	14	0.7	27+3	22	1.1	37+0	30	1.6
20+3	15	0.8	28+4	23	1.2	38+2	31	1.6
21+3	16	0.8	29+4	24	1.2	39+6	32	1.7
22+3	17	0.9	30+5	25	1.3	41+2	33	1.8

1-2-16 Abdominal Circumference (AC) SIRIRAJ

Reference: Sunsaneevithayakul P, Boriboonhirunsarn D, Siwadune T, Titapant V, Vantanasiri C. Charts of Thai fetal biometries: 4. Abdominal circumference. J Med Assoc Thai 2000; 83: 307-314

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12 weeks
Max Range: 41.0 weeks

GA (weeks)	AC (mm)		
	10^{th}Cent.	50^{th}Cent.	90^{th}Cent.
12	54.16	61.56	69.44
13	63.35	70.83	78.73
14	72.90	80.49	88.45
15	82.76	90.50	98.58
16	92.85	100.80	109.08
17	103.12	111.36	119.92
18	113.53	122.13	131.04
19	124.04	133.07	142.42
20	134.59	144.13	154.00
21	145.12	155.28	165.79
22	155.69	166.47	177.61
23	166.18	177.67	189.55
24	176.59	188.85	201.52
25	186.91	199.96	213.46
26	197.10	210.96	225.33
27	207.15	221.86	237.08
28	217.04	232.58	248.65
29	226.78	243.11	260.01
30	236.33	253.42	271.10
31	245.71	263.48	281.87
32	254.89	273.26	292.26
33	263.88	282.74	302.24
34	272.69	291.89	311.74
35	281.30	300.69	320.73
36	289.72	309.12	329.15
37	297.95	317.16	336.97
38	306.01	324.79	344.13
39	313.89	331.98	350.59
40	321.60	338.73	356.31
41	329.16	345.02	361.25

1-2-17 Abdominal Circumference (AC) TOKYO

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA (weeks)	AC (cm)		
	-1.64SD	Mean	+1.64SD
16	9.30	10.90	12.50
17	10.30	12.00	13.60
18	11.20	13.00	14.70
19	12.20	14.00	15.80
20	13.10	15.10	16.90
21	14.00	16.10	18.00
22	15.00	17.10	19.10
23	15.90	18.10	20.20
24	16.80	19.10	21.20
25	17.70	20.10	22.30
26	18.60	21.00	23.30
27	19.50	22.00	24.40
28	20.30	22.90	25.40
29	21.10	23.80	26.40
30	22.00	24.70	27.30
31	22.80	25.60	28.30
32	23.50	26.50	29.20
33	24.30	27.30	30.10
34	25.00	28.10	31.00
35	25.70	28.90	31.90
36	26.40	29.70	32.70
37	27.00	30.40	33.50
38	27.60	31.10	34.30
39	28.20	31.80	35.00
40	28.80	32.40	35.70
41	29.30	33.00	36.40
42	29.70	33.60	37.00

1-2-18 Abdominal Circumference (AC) VERBURG

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: w (weeks)
Output Unit: mm
Min Range: 10.0 weeks
Max Range: 40.0 weeks

Abdominal Circumference	Mean	$-33.2888 + 1.4251 \times GA^2 - 0.3233 \times GA^2 \times \log(GA)$
	SD	$-1.8030 + 0.4845 \times GA$

GA (weeks)	AC (mm)			GA (weeks)	AC (mm)		
	3%	50%	97%		3%	50%	97%
10	29.1	34.8	40.5	26	197.7	218.0	238.3
11	38.7	45.3	52.0	27	207.6	228.8	250.0
12	48.7	56.2	63.8	28	217.3	239.4	261.5
13	59.0	67.4	75.9	29	226.6	249.7	272.7
14	69.4	78.8	88.2	30	235.7	259.7	283.6
15	80.1	90.4	100.6	31	244.5	269.3	294.2
16	90.9	102.1	113.2	32	252.9	278.7	304.4
17	101.7	113.9	126.0	33	260.9	287.6	314.3
18	112.7	125.7	138.7	34	268.6	296.2	323.8
19	123.6	137.5	151.4	35	275.9	304.4	332.9
20	134.5	149.3	164.2	36	282.7	312.2	341.6
21	145.4	161.1	176.9	37	289.2	319.5	349.8
22	156.1	172.8	189.4	38	295.1	326.4	357.6
23	166.8	184.3	201.9	39	300.6	332.8	364.9
24	177.3	195.8	214.2	40	305.6	338.7	371.7
25	187.6	207.0	226.4				

1-2-19 Abdominal Diameter (AD) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)	GA (d)	AD (mm)
111	34.0	151	54.0	191	74.0	231	93.5	271	110.0
112	34.5	152	54.5	192	74.5	232	94.0	272	110.3
113	35.0	153	55.0	193	75.0	233	94.4	273	110.7
114	35.5	154	55.5	194	75.5	234	94.8	274	111.0
115	36.0	155	56.0	195	76.0	235	95.2	275	111.3
116	36.5	156	56.5	196	76.5	236	95.6	276	111.7
117	37.0	157	57.0	197	77.0	237	96.0	277	112.0
118	37.5	158	57.5	198	77.5	238	96.5	278	112.3
119	38.0	159	58.0	199	78.0	239	97.0	279	112.7
120	38.5	160	58.5	200	78.5	240	97.5	280	113.0
121	39.0	161	59.0	201	79.0	241	98.0	281	113.3
122	39.5	162	59.5	202	79.5	242	98.4	282	113.5
123	40.0	163	60.0	203	80.0	243	98.8	283	113.8
124	40.5	164	60.5	204	80.5	244	99.2	284	114.0
125	41.0	165	61.0	205	81.0	245	99.6	285	114.3
126	41.5	166	61.5	206	81.5	246	100.0	286	114.5
127	42.0	167	62.0	207	82.0	247	100.5	287	114.8
128	42.5	168	62.5	208	82.5	248	101.0	288	115.0
129	43.0	169	63.0	209	83.0	249	101.4	289	115.3
130	43.5	170	63.5	210	83.5	250	101.8	290	115.5
131	44.0	171	64.0	211	84.0	251	102.2	291	115.8
132	44.5	172	64.5	212	84.5	252	102.6	292	116.0
133	45.0	173	65.0	213	85.0	253	103.0	293	116.2
134	45.5	174	65.5	214	85.3	254	103.4	294	116.4
135	46.0	175	66.0	215	86.0	255	103.8	295	116.6
136	46.5	176	66.5	216	86.5	256	104.2	296	116.8
137	47.0	177	67.0	217	87.0	257	104.6	297	117.0
138	47.5	178	67.5	218	87.5	258	105.0	298	117.2
139	48.0	179	68.0	219	88.0	259	105.3	299	117.4
140	48.5	180	68.5	220	88.5	260	105.7	300	117.6
141	49.0	181	69.0	221	89.0	261	106.0		
142	49.5	182	69.5	222	89.5	262	106.4		
143	50.0	183	70.0	223	90.0	263	106.8		
144	50.5	184	70.5	224	90.4	264	107.2		
145	51.0	185	71.0	225	90.8	265	107.6		
146	51.5	186	71.5	226	91.2	266	108.0		
147	52.0	187	72.0	227	91.6	267	108.4		
148	52.2	188	72.5	228	92.0	268	108.8		
149	53.0	189	73.0	229	92.5	269	109.2		
150	53.5	190	73.5	230	93.0	270	109.6		

1-2-20 Amniotic Fluid Index (AFI) MOORE

Reference: Moore. Th. R., Cayle, J. E., "The amniotic fluid index in normal human pregnancy", Am J Obstet Gynecol Vol. 162 No. 5, 1990, pages 1168-1173

Input Unit: w (weeks)
Output Unit; mm
Min Range: 16 weeks
Max Range: 42 weeks

GA (weeks	AFI(mm)		
	5%	50%	95%
16	79	121	185
17	83	127	194
18	87	133	202
19	90	137	207
20	93	141	212
21	96	143	214
22	97	145	216
23	98	146	218
24	98	147	219
25	97	147	221
26	97	147	223
27	96	146	226
28	94	146	228
29	92	145	231
30	90	145	234
31	88	144	238
32	86	144	242
33	83	143	245
34	81	142	248
35	79	140	249
36	77	138	249
37	75	135	244
38	73	132	239
39	72	127	226
40	71	123	214
41	70	116	194
42	69	110	175

1-2-21 Anterior Posterior Abdominal Diameter (APAD) MERZ

Reference: Merz E., Wellek S. "Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones" Ultraschall in Med. 17 (1996) 153-162

GA (weeks)	APAD (cm)			GA (weeks)	APAD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	1.50	1.90	2.30	27.5	6.40	7.00	7.60
13.0	1.70	2.10	2.50	28.0	6.50	7.20	7.80
13.5	1.80	2.30	2.70	28.5	6.70	7.30	8.00
14.0	2.00	2.40	2.80	29.0	6.80	7.50	8.10
14.5	2.20	2.60	3.00	29.5	7.00	7.60	8.30
15.0	2.30	2.80	3.20	30.0	7.10	7.80	8.50
15.5	2.50	2.90	3.40	30.5	7.30	7.90	8.60
16.0	2.70	3.10	3.60	31.0	7.40	8.10	8.80
16.5	2.80	3.30	3.70	31.5	7.60	8.20	8.90
17.0	3.00	3.50	3.90	32.0	7.70	8.40	9.10
17.5	3.20	3.60	4.10	32.5	7.80	8.50	9.30
18.0	3.30	3.80	4.30	33.0	8.00	8.70	9.40
18.5	3.50	4.00	4.50	33.5	8.10	8.80	9.60
19.0	3.70	4.20	4.70	34.0	8.30	9.00	9.70
19.5	3.80	4.30	4.80	34.5	8.40	9.10	9.90
20.0	4.00	4.50	5.00	35.0	8.50	9.30	10.00
20.5	4.20	4.70	5.20	35.5	8.70	9.40	10.20
21.0	4.30	4.80	5.40	36.0	8.80	9.60	10.30
21.5	4.50	5.00	5.50	36.5	8.90	9.70	10.50
22.0	4.60	5.20	5.70	37.0	9.00	9.80	10.60
22.5	4.80	5.40	5.90	37.5	9.20	10.00	10.70
23.0	5.00	5.50	6.10	38.0	9.30	10.10	10.90
23.5	5.10	5.70	6.30	38.5	9.40	10.20	11.00
24.0	5.30	5.90	6.40	39.0	9.50	10.30	11.10
24.5	5.40	6.00	6.60	39.5	9.60	10.50	11.30
25.0	5.60	6.20	6.80	40.0	9.70	10.60	11.40
25.5	5.70	6.30	6.90	40.5	9.80	10.70	11.50
26.0	5.90	6.50	7.10	41.0	9.90	10.80	11.60
26.5	6.10	6.70	7.30	41.5	10.00	10.90	11.70
27.0	6.20	6.80	7.50				

1-2-22 Anterior Posterior Trunk Diameter (APTD) HANSMANN

Reference: Hansmann M. "Ultraschallbiometrie im II. und III. Trimester der Schwangerschaft" Gynäkologe 9 (1976) 133

NOTE: concerning DICOM-SR:
APTD Value is transferred as APAD value (Anterior Posterior Abdominal Diameter)
(because no APTD item present in DICOM standard)

GA (weeks)	AP		
	-2SD	mean	+2SD
14	2.25	2.25	2.25
15	2.21	2.58	2.95
16	2.45	2.85	3.25
17	2.61	3.11	3.61
18	3.02	3.46	3.90
19	3.25	3.75	4.25
20	3.40	4.00	4.60
21	3.76	4.34	4.92
22	4.04	4.65	5.26
23	4.20	4.90	5.60
24	4.35	5.15	5.95
25	4.68	5.48	6.28
26	4.95	5.80	6.65
27	5.30	6.15	7.00
28	5.43	6.39	7.35
29	5.70	6.70	7.70
30	6.01	7.01	8.01
31	6.10	7.25	8.40
32	6.52	7.62	8.72
33	6.81	7.93	9.05
34	6.90	8.15	9.40
35	7.08	8.40	9.72
36	7.40	8.75	10.10
37	7.62	9.02	10.42
38	7.90	9.30	10.70
39	8.06	9.53	11.00
40	8.16	9.68	11.20
41	8.32	9.84	11.35
42	8.41	9.91	11.40

1-2-23 Aorta Peak Velocity (Aorta Vmax) RIZZO

Reference: Hansmann M. "Ultraschallbiometrie im II. und III. Trimester der Schwangerschaft" Gynkologe 9 (1976) 144

Input Unit: w (weeks)
Output Unit; cm/sec.
Min Range: 20.0 weeks
Max Range: 38.0 weeks

GA (weeks)	Aorta Vmax (cm/sec.)		
	2.5%	mean	97.5%
20	29.0	62.0	95.0
21	30.0	63.0	96.0
22	32.0	65.0	98.0
23	33.0	66.0	99.0
24	34.0	67.0	100.0
25	36.0	68.0	101.0
26	37.0	70.0	103.0
27	38.0	71.0	104.0
28	40.0	72.0	105.0
29	41.0	74.0	107.0
30	42.0	75.0	108.0
31	44.0	76.0	109.0
32	45.0	77.0	110.0
33	46.0	79.0	112.0
34	48.0	80.0	113.0
35	49.0	81.0	114.0
36	50.0	82.0	115.0
37	52.0	84.0	117.0
38	53.0	85.0	118.0

1-2-24 APTD x TTD SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, University of Tokyo Faculty of Medicine,
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

NOTE: Table used up to Voluson i/e BT07

Used for Graph Display

GA (weeks)	APTD x TTD (cm^2)			GA (weeks)	APTD x TTD (cm^2)		
	-1.64SD	mean	+1.64SD		-1.64SD	mean	+1.64SD
16.0	7.0	11.2	15.5	30.0	43.5	55.7	68.0
17.0	8.7	13.3	18.0	31.0	46.8	59.7	72.7
18.0	10.5	15.6	20.7	32.0	50.0	63.8	77.6
19.0	12.5	18.1	23.6	33.0	53.3	67.8	82.4
20.0	14.7	20.8	26.8	34.0	56.6	71.9	87.3
21.0	17.1	23.6	30.2	35.0	59.7	75.9	92.2
22.0	19.6	26.7	33.8	36.0	62.8	79.9	97.0
23.0	22.2	29.9	37.5	37.0	65.9	83.9	101.9
24.0	25.0	33.2	41.5	38.0	68.8	87.7	106.7
25.0	27.9	36.7	45.6	39.0	71.6	91.5	111.4
26.0	30.9	40.3	49.8	40.0	74.3	95.1	116.0
27.0	33.9	44.1	54.2	41.0	76.8	98.6	120.5
28.0	37.1	47.9	58.7	42.0	79.1	102.0	124.8
29.0	40.3	51.8	63.3				

NOTE: Table used at Voluson i/e BT09 and upwards

Used for SD Display (on system ± 1.64SD is used)

$$\pm 1SD = 0{,}151 \bullet GA \bullet 10^{2} \bullet 10^{-3} + 0{,}58$$

(see Table 1 in Reference above) GA in days, 1SD in cm²

The SD values in the table below are calculated using the formula above

GA (w+d)	AxT (cm^2)		GA (w+d)	AxT (cm^2)		GA (w+d)	AxT (cm^2)		GA (w+d)	AxT (cm^2)	
	mean	± 1SD		mean	± 1SD		mean	± 1SD		mean	± 1SD
16+1	10	2.5	24+1	32	4.9	30+0	54	7.2	35+3	76	9.9
17+0	12	2.7	24+5	34	5.1	30+3	56	7.4	35+6	78	10.1
17+6	14	2.9	25+2	36	5.3	31+0	58	7.7	36+3	80	10.2
18+4	16	3.1	25+6	38	5.5	31+3	60	7.9	37+0	82	10.7
19+3	18	3.4	26+3	40	5.7	31+6	62	8.1	37+4	84	11.0
20+1	20	3.6	27+0	42	6.0	32+3	64	8.4	38+1	86	11.3
20+6	22	3.8	27+3	44	6.1	32+6	66	8.6	38+5	88	11.7
21+4	24	4.0	28+0	46	6.4	33+3	68	8.8	39+2	90	12.0
22+2	26	4.3	28+4	48	6.6	33+6	70	9.1			
22+6	28	4.4	29+0	50	6.8	34+2	72	9.3			
23+4	30	4.7	29+3	52	7.0	34+6	74	9.6			

1-2-25 APTD x TTD TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

50%	$AxT = 9{,}618 \times GA^3 \times 10^{-6} - 1{,}982 \times GA^4 \times 10^{-8} + 1{,}791$
95%	$AxT = 1{,}194 \times GA^3 \times 10^{-5} - 2{,}543 \times GA^4 \times 10^{-8} + 4{,}715$
5%	$AxT = 12{,}549 \times GA + 9{,}372 \times GA^2 \times 10^{-2} - 2{,}975 \times GA^3 \times 10^{-4} + 3{,}505 \times GA^4 \times 10^{-7} + 617{,}59$

Input Unit: days

Output Unit: cm^2

Range: 140 .... 287 days (20w0d 41w0d

Table values are calculated with the equations above

GA	APTDxTTD (cm^2)			GA	APTDxTTD (cm^2)			GA	APTDxTTD (cm^2)			GA	APTDxTTD (cm^2)		
(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%
140	15.95	20.57	27.71	177	26.88	35.67	45.97	214	43.60	54.48	68.40	251	58.98	75.21	92.59
141	16.01	20.92	28.13	178	27.32	36.14	46.53	215	44.03	55.03	69.04	252	59.42	75.78	93.24
142	16.08	21.27	28.56	179	27.77	36.61	47.09	216	44.45	55.57	69.69	253	59.87	76.34	93.88
143	16.18	21.63	29.00	180	28.22	37.08	47.65	217	44.88	56.12	70.33	254	60.32	76.90	94.53
144	16.29	21.99	29.43	181	28.67	37.55	48.22	218	45.30	56.67	70.98	255	60.78	77.47	95.17
145	16.42	22.35	29.87	182	29.12	38.03	48.79	219	45.73	57.22	71.63	256	61.24	78.03	95.81
146	16.57	22.72	30.32	183	29.58	38.51	49.37	220	46.15	57.77	72.28	257	61.71	78.59	96.45
147	16.73	23.09	30.77	184	30.03	38.99	49.95	221	46.56	58.33	72.93	258	62.19	79.15	97.09
148	16.91	23.46	31.22	185	30.49	39.47	50.53	222	46.98	58.88	73.58	259	62.67	79.71	97.73
149	17.11	23.84	31.68	186	30.95	39.96	51.11	223	47.40	59.44	74.24	260	63.16	80.26	98.36
150	17.32	24.22	32.14	187	31.41	40.45	51.70	224	47.81	59.99	74.89	261	63.66	80.82	99.00
151	17.54	24.60	32.60	188	31.87	40.94	52.29	225	48.22	60.55	75.54	262	64.17	81.38	99.63
152	17.78	24.99	33.07	189	32.33	41.43	52.88	226	48.63	61.11	76.20	263	64.68	81.93	100.25
153	18.03	25.38	33.54	190	32.79	41.93	53.47	227	49.04	61.67	76.86	264	65.20	82.48	100.88
154	18.30	25.77	34.02	191	33.26	42.43	54.07	228	49.45	62.23	77.51	265	65.74	83.04	101.50
155	18.57	26.17	34.50	192	33.72	42.93	54.67	229	49.86	62.79	78.17	266	66.28	83.59	102.13
156	18.86	26.57	34.98	193	34.18	43.44	55.27	230	50.27	63.35	78.83	267	66.83	84.13	102.74
157	19.16	26.97	35.47	194	34.64	43.94	55.87	231	50.68	63.91	79.48	268	67.40	84.68	103.36
158	19.47	27.38	35.96	195	35.10	44.45	56.48	232	51.08	64.47	80.14	269	67.97	85.23	103.97
159	19.79	27.78	36.46	196	35.56	44.96	57.09	233	51.49	65.04	80.80	270	68.56	85.77	104.58
160	20.13	28.20	36.96	197	36.02	45.47	57.70	234	51.89	65.60	81.46	271	69.15	86.31	105.19
161	20.47	28.61	37.46	198	36.48	45.99	58.31	235	52.30	66.17	82.11	272	69.77	86.85	105.80
162	20.82	29.03	37.96	199	36.93	46.50	58.93	236	52.71	66.73	82.77	273	70.39	87.39	106.40
163	21.17	29.45	38.47	200	37.39	47.02	59.55	237	53.11	67.30	83.43	274	71.03	87.93	107.00
164	21.54	29.88	38.99	201	37.84	47.54	60.17	238	53.52	67.86	84.09	275	71.68	88.46	107.59
165	21.92	30.31	39.50	202	38.30	48.07	60.79	239	53.93	68.43	84.75	276	72.34	88.99	108.18
166	22.30	30.74	40.02	203	38.75	48.59	61.41	240	54.34	68.99	85.40	277	73.03	89.52	108.77
167	22.69	31.17	40.55	204	39.20	49.12	62.04	241	54.75	69.56	86.06	278	73.72	90.05	109.36

GA (days)	APTDxTTD (cm^2)			GA (days)	APTDxTTD (cm^2)			GA (days)	APTDxTTD (cm^2)			GA (days)	APTDxTTD (cm^2)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%		5%	50%	95%
168	23.08	31.61	41.07	205	39.65	49.65	62.67	242	55.16	70.12	86.72	279	74.44	90.58	109.94
169	23.48	32.05	41.60	206	40.09	50.18	63.30	243	55.57	70.69	87.37	280	75.17	91.10	110.51
170	23.89	32.49	42.14	207	40.54	50.71	63.93	244	55.99	71.26	88.03	281	75.91	91.62	111.09
171	24.30	32.94	42.67	208	40.98	51.24	64.56	245	56.41	71.82	88.68	282	76.68	92.14	111.66
172	24.72	33.38	43.21	209	41.42	51.78	65.20	246	56.83	72.39	89.34	283	77.46	92.65	112.22
173	25.15	33.84	43.76	210	41.86	52.32	65.83	247	57.25	72.95	89.99	284	78.27	93.17	112.78
174	25.57	34.29	44.31	211	42.30	52.86	66.47	248	57.68	73.52	90.64	285	79.09	93.68	113.34
175	26.01	34.75	44.86	212	42.73	53.40	67.11	249	58.11	74.09	91.29	286	79.93	94.18	113.89
176	26.44	35.21	45.41	213	43.17	53.94	67.75	250	58.54	74.65	91.94	287	80.80	94.69	114.44

1-2-26 Binocular Distance (BOD) JEANTY

Reference: Jeanty P., Dramaix-Wilmet M., Van Gansbeke D., Van Regemorter N., Rodesch F. "Fetal ocular biometry by ultrasound" Radiology 143(2): 513-516; May 1982

GA (weeks)	BOD (cm)			GA (weeks)	BOD (cm)		
	5%	50%	95%		5%	50%	95%
12	1.10	1.60	2.00	27	4.00	4.50	4.90
13	1.40	1.80	2.30	28	4.20	4.60	5.10
14	1.60	2.00	2.50	29	4.30	4.80	5.20
15	1.80	2.30	2.70	30	4.50	4.90	5.30
16	2.00	2.50	2.90	31	4.60	5.00	5.50
17	2.20	2.70	3.10	32	4.70	5.20	5.60
18	2.40	2.90	3.30	33	4.90	5.30	5.70
19	2.60	3.10	3.50	34	5.00	5.40	5.80
20	2.80	3.30	3.70	35	5.10	5.50	6.00
21	3.00	3.50	3.90	36	5.20	5.60	6.10
22	3.20	3.60	4.10	37	5.30	5.70	6.20
23	3.40	3.80	4.30	38	5.40	5.80	6.30
24	3.50	4.00	4.40	39	5.50	5.90	6.40
25	3.70	4.20	4.60	40	5.60	6.00	6.40
26	3.90	4.30	4.70				

1-2-27 Biparietal Diameter (BPD) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	BPD (cm)		GA (week)	BPD (cm)	
	mean	±2SD		mean	±2SD
11	1.60	0.20	27	6.80	0.50
12	2.00	0.40	28	7.20	0.40
13	2.40	0.40	29	7.50	0.40
14	2.80	0.40	30	7.60	0.40
15	3.10	0.40	31	8.00	0.60
16	3.60	0.50	32	8.10	0.40
17	3.90	0.50	33	8.40	0.60
18	4.20	0.40	34	8.60	0.60
19	4.50	0.50	35	8.80	0.65
20	4.70	0.40	36	9.00	0.60
21	4.90	0.40	37	9.20	0.65
22	5.20	0.50	38	9.30	0.60
23	5.70	0.50	39	9.50	0.80
24	6.00	0.60	40	9.60	0.80
25	6.40	0.60	41	9.80	0.80
26	6.70	0.40			

1-2-28 Biparietal Diameter (BPD) CAMPBELL

Reference: Campbell S., Warsof S.L., Little D., Cooper D.J.
"Routine Ultrasound Screening for the Prediction of Gestational Age"
Obstetrics & Gynecology; Vol. 65; No. 5; May 1985; pages 613-620

GA (weeks)	BPD (cm)	
	mean	±1SD
12	2.12	0.30
13	2.17	0.28
14	2.78	0.32
15	3.14	0.28
16	3.53	0.29
17	3.87	0.24
18	4.15	0.29
19	4.60	0.31
20	4.82	0.32
21	5.12	0.31
22	5.42	0.34
23	5.82	0.23
24	6.16	0.39
25	6.42	0.58
26	6.59	0.50
27	7.09	0.52
28	7.58	0.32
29	7.87	0.34
30	8.03	0.43
31	8.22	0.39
32	8.57	0.35
33	8.67	0.28
34	8.94	0.36
35	9.16	0.30
36	9.14	0.42
37	9.35	0.39
38	9.35	0.44
39	9.62	0.39
40	9.59	0.33

1-2-29 Biparietal Diameter (BPD) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil , Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 11 weeks
Max Range: 41 weeks

GA (week)	BPD (mm)				
	3%	10%	50%	90%	97%
11	12.08	13.12	15.36	17.60	18.63
12	15.81	16.96	19.40	21.81	22.92
13	19.47	20.71	23.30	25.92	27.12
14	23.05	24.36	27.14	29.92	31.23
15	26.56	27.93	30.89	33.82	35.23
16	29.97	31.41	34.53	37.62	39.08
17	33.32	34.85	38.12	41.35	42.87
18	36.55	38.15	41.58	44.97	46.56
19	39.76	41.46	45.00	48.52	50.18
20	42.85	44.56	48.22	51.90	53.64
21	45.86	47.66	51.43	55.23	57.00
22	48.79	50.61	54.53	58.44	60.30
23	51.63	53.48	57.51	61.54	63.45
24	54.38	56.31	60.42	64.57	66.50
25	57.04	59.00	63.25	67.48	69.42
26	59.62	61.64	65.94	70.24	72.27
27	62.12	64.15	68.55	72.92	75.00
28	64.50	66.61	71.03	75.52	77.60
29	66.84	68.98	73.50	77.97	80.09
30	69.07	71.21	75.80	80.37	82.52
31	71.22	73.39	78.00	82.63	84.80
32	73.30	75.49	80.16	84.80	87.00
33	75.24	77.46	82.14	86.84	89.04
34	77.14	79.36	84.07	88.80	91.00
35	78.94	81.14	85.90	90.61	92.83
36	80.64	82.88	87.61	92.35	94.56
37	82.27	84.50	89.24	93.97	96.19
38	83.78	86.00	90.70	95.42	97.66
39	85.22	87.43	92.10	96.86	99.05
40	86.57	88.78	93.45	98.13	100.31
41	87.00	89.00	94.00	99.00	101.00

1-2-30 Biparietal Diameter (BPD) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101, 1994, pages 35-43.

NOTE: Outer-outer measurement

GA (Week)	BPD (cm)		
	3thcentile	Median	97thcentile
12	1.55	1.97	2.39
13	1.92	2.35	2.78
14	2.29	2.73	3.17
15	2.65	3.10	3.56
16	3.01	3.47	3.94
17	3.36	3.83	4.31
18	3.70	4.19	4.68
19	4.04	4.54	5.04
20	4.37	4.88	5.39
21	4.70	5.22	5.74
22	5.02	5.55	6.08
23	5.33	5.87	6.41
24	5.63	6.18	6.73
25	5.92	6.48	7.04
26	6.20	6.78	7.35
27	6.48	7.06	7.65
28	6.74	7.34	7.93
29	6.99	7.60	8.21
30	7.24	7.86	8.47
31	7.47	8.10	8.73
32	7.69	8.33	8.97
33	7.90	8.55	9.21
34	8.10	8.76	9.43
35	8.29	8.96	9.63
36	8.46	9.15	9.83
37	8.62	9.32	10.01
38	8.77	9.48	10.18
39	8.90	9.62	10.34
40	9.02	9.75	10.48
41	9.13	9.87	10.61
42	9.22	9.97	10.72

1-2-31 Biparietal Diameter (BPD) Eik-Nes

Reference: *H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007*

Input Unit: d(days)
Output Unit: mm
Min Range: 168 days
Max Range: 301 days

GA (d)	BPD (mm)		GA (d)	BPD (mm)		GA (d)	BPD (mm)	
	mean	±1SD		mean	±1SD		mean	±1SD
168	61.6	2.205	215	82.1	2.749	262	94.8	3.413
169	62	2.213	216	82.5	2.758	263	95	3.424
170	62.5	2.222	217	82.8	2.765	264	95.2	3.434
171	63	2.231	218	83.1	2.772	265	95.3	3.444
172	63.4	2.243	219	83.5	2.777	266	95.5	3.453
173	63.9	2.255	220	83.8	2.782	267	95.7	3.461
174	64.4	2.27	221	84.1	2.788	268	95.9	3.467
175	64.9	2.287	222	84.5	2.793	269	96.1	3.473
176	65.3	2.305	223	84.8	2.799	270	96.3	3.477
177	65.8	2.325	224	85.1	2.806	271	96.5	3.48
178	66.3	2.345	225	85.4	2.813	272	96.6	3.481
179	66.8	2.366	226	85.7	2.822	273	96.8	3.48
180	67.3	2.386	227	86	2.832	274	97	3.478
181	67.7	2.407	228	86.3	2.843	275	97.1	3.474
182	68.2	2.426	229	86.6	2.856	276	97.3	3.468
183	68.7	2.444	230	86.9	2.87	277	97.5	3.459
184	69.2	2.46	231	87.2	2.886	278	97.6	3.449
185	69.6	2.475	232	87.5	2.903	279	97.8	3.436
186	70.1	2.488	233	87.8	2.922	280	97.9	3.421
187	70.6	2.501	234	88.1	2.942	281	98.1	3.404
188	71	2.512	235	88.4	2.963	282	98.2	3.386
189	71.5	2.523	236	88.6	2.985	283	98.4	3.365
190	72	2.534	237	88.9	3.008	284	98.5	3.341
191	72.4	2.545	238	89.2	3.031	285	98.6	3.315
192	72.9	2.556	239	89.4	3.055	286	98.8	3.287
193	73.3	2.568	240	89.7	3.078	287	98.9	3.255
194	73.8	2.58	241	90	3.101	288	99	3.221
195	74.2	2.591	242	90.2	3.123	289	99.1	3.184
196	74.6	2.602	243	90.5	3.145	290	99.3	3.146
197	75.1	2.613	244	90.7	3.165	291	99.4	3.106
198	75.5	2.622	245	91	3.184	292	99.5	3.064
199	75.9	2.631	246	91.2	3.203	293	99.6	3.02
200	76.3	2.639	247	91.4	3.22	294	99.7	2.974
201	76.8	2.647	248	91.7	3.236	295	99.8	2.926
202	77.2	2.654	249	91.9	3.252	296	99.9	2.875
203	77.6	2.66	250	92.2	3.267	297	100	2.821

GA (d)	BPD (mm)		GA (d)	BPD (mm)		GA (d)	BPD (mm)	
	mean	±1SD		mean	±1SD		mean	±1SD
204	78	2.665	251	92.4	3.281	298	100.1	2.763
205	78.4	2.669	252	92.6	3.295	299	100.2	2.703
206	78.8	2.674	253	92.8	3.308	300	100.3	2.64
207	79.2	2.679	254	93.1	3.321	301	100.5	2.574
208	79.5	2.684	255	93.3	3.333			
9	79.9	2.691	256	93.5	3.344			
210	80.3	2.699	257	93.7	3.356			
211	80.7	2.708	258	93.9	3.367			
212	81	2.718	259	94.1	3.379			
213	81.4	2.729	260	94.4	3.39			
214	81.8	2.739	261	94.6	3.402			

1-2-32 Biparietal Diameter (BPD) HADLOCK

Reference: *Hadlock F.P., Deter R.L.; Harrist R.B., Park S.K.*
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$BPD = -3{,}08 + 0{,}41 \times GA - 0{,}000061 \times GA^3$$

Input Unit: w (week)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 0.30 cm

corresponds to: 16% … 84% (-0.30cm … +0.30cm)

GA (weeks)	BPD (cm)	GA (weeks)	BPD (cm)	GA (weeks)	BPD (cm)
12.0	1.70	21.5	5.10	31.0	7.80
12.5	1.90	22.0	5.30	31.5	7.90
13.0	2.10	22.5	5.50	32.0	8.10
13.5	2.30	23.0	5.60	32.5	8.20
14.0	2.50	23.5	5.80	33.0	8.30
14.5	2.70	24.0	5.90	33.5	8.40
15.0	2.90	24.5	6.10	34.0	8.50
15.5	3.10	25.0	6.20	34.5	8.60
16.0	3.20	25.5	6.40	35.0	8.70
16.5	3.40	26.0	6.50	35.5	8.80
17.0	3.60	26.5	6.70	36.0	8.90
17.5	3.80	27.0	6.80	36.5	8.90
18.0	3.90	27.5	6.90	37.0	9.00
18.5	4.10	28.0	7.10	37.5	9.10
19.0	4.30	28.5	7.20	38.0	9.20
19.5	4.50	29.0	7.30	38.5	9.20
20.0	4.60	29.5	7.50	39.0	9.30
20.5	4.80	30.0	7.60	39.5	9.40
21.0	5.00	30.5	7.70	40.0	9.40

1-2-33 Biparietal Diameter (BPD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986. p.432

GA (weeks)	BPD (cm)		
	5%	50%	95%
12	2.00	2.00	2.00
13	1.90	2.40	2.90
14	2.30	2.80	3.20
15	2.70	3.20	3.50
16	3.10	3.50	3.90
17	3.40	3.80	4.20
18	3.80	4.20	4.60
19	4.10	4.60	5.00
20	4.40	4.90	5.30
21	4.80	5.20	5.70
22	5.10	5.60	6.00
23	5.40	5.90	6.40
24	5.70	6.20	6.70
25	6.00	6.50	7.10
26	6.30	6.80	7.40
27	6.60	7.10	7.70
28	6.80	7.40	8.00
29	7.10	7.70	8.30
30	7.30	8.00	8.60
31	7.50	8.20	8.80
32	7.80	8.50	9.10
33	8.00	8.70	9.30
34	8.20	8.90	9.50
35	8.40	9.10	9.70
36	8.60	9.30	9.90
37	8.80	9.50	10.10
38	8.90	9.60	10.20
39	9.00	9.80	10.40
40	9.20	9.90	10.50
41	9.30	10.00	10.60

1-2-34 Biparietal Diameter (BPD) JACOT-GUILLARMOD

Reference: Jacot-Guillarmod M., Vial Y., Hohlfeld P., Courbes de Biomètrie, Lausanne CHUV 2003

Input Unit: w (weeks)
Output Unit: mm
Min Range: 10.0 weeks
Max Range: 41.0 weeks

GA (weeks)	BPD (mm)		
	5%	50%	95%
10	11.2	15.0	17.4
11	14.7	18.4	21.1
12	18.2	21.7	24.7
13	21.6	25.1	28.4
14	25.0	28.5	32.0
15	28.3	31.9	35.6
16	31.6	35.3	39.2
17	34.8	38.7	42.8
18	38.0	42.0	46.4
19	41.1	45.3	49.8
20	44.2	48.6	53.3
21	47.2	51.8	56.7
22	50.1	55.0	60.0
23	52.9	58.1	63.2
24	55.7	61.1	66.4
25	58.4	64.1	69.5
26	61.1	67.0	72.5
27	63.6	69.8	75.4
28	66.1	72.4	78.1
29	68.5	75.0	80.8
30	70.8	77.5	83.3
31	73.1	79.8	85.7
32	75.2	82.0	88.0
33	77.2	84.1	90.1
34	79.2	86.0	92.1
35	81.0	87.7	93.9
36	82.8	89.3	95.5
37	84.5	90.8	97.0
38	86.0	92.0	98.3
39	87.4	93.1	99.4
40	88.8	94.0	100.3
41	90.0	94.7	101.0

1-2-35 Biparietal Diameter (BPD) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J.C., Tack B., Bracken M., Cantraine F.
"A longitudinal Study of fetal head biometry"
American Journal of Perinatology; Volume1; Number 2; January 1984; pages 118-128

$$BPD = -19{,}634 + 3{,}0209 \times GA + 0{,}042134 \times GA^2 - 0{,}0011756 \times GA^3$$

Input Unit: weeks
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	BPD (cm)		
	5%	50%	95%
10	0.90	1.40	1.80
11	1.30	1.70	2.20
12	1.60	2.10	2.50
13	2.00	2.40	2.90
14	2.30	2.80	3.20
15	2.70	3.10	3.60
16	3.00	3.50	3.90
17	3.40	3.80	4.30
18	3.70	4.20	4.60
19	4.00	4.50	4.90
20	4.40	4.80	5.30
21	4.70	5.10	5.60
22	5.00	5.50	5.90
23	5.30	5.80	6.20
24	5.60	6.10	6.50
25	5.90	6.40	6.80
26	6.20	6.70	7.10
27	6.50	7.00	7.40
28	6.80	7.20	7.70
29	7.00	7.50	7.90
30	7.30	7.70	8.20
31	7.50	7.90	8.40
32	7.70	8.20	8.60
33	7.90	8.40	8.80
34	8.10	8.60	9.00
35	8.30	8.70	9.20
36	8.40	8.90	9.30
37	8.60	9.00	9.50
38	8.70	9.10	9.60
39	8.80	9.30	9.70
40	8.90	9.30	9.80

1-2-36 Biparietal Diameter (BPD) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

Age (weeks)	BPD (cm)		
	-1 SD	Mean	+1 SD
11	1.36	1.59	1.82
12	1.69	1.93	2.17
13	2.03	2.27	2.52
14	2.36	2.61	2.86
15	2.69	2.95	3.21
16	3.03	3.29	3.55
17	3.36	3.63	3.90
18	3.69	3.96	4.23
19	4.02	4.30	4.58
20	4.34	4.62	4.90
21	4.66	4.95	5.24
22	4.96	5.26	5.56
23	5.27	5.57	5.87
24	5.57	5.88	6.19
25	5.86	6.17	6.48
26	6.14	6.46	6.78
27	6.42	6.74	7.06
28	6.68	7.01	7.34
29	6.93	7.26	7.60
30	7.17	7.51	7.85
31	7.39	7.74	8.09
32	7.61	7.96	8.31
33	7.81	8.17	8.53
34	8.00	8.36	8.72
35	8.16	8.53	8.90
36	8.32	8.69	9.06
37	8.45	8.83	9.21
38	8.58	8.96	9.35
39	8.67	9.06	9.45
40	8.75	9.15	9.55
41	8.82	9.22	9.62
42	8.85	9.26	9.67

1-2-37 Biparietal Diameter (BPD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	BPD (cm)		
	5%	50%	95%
12	1.70	2.10	2.50
13	2.08	2.49	2.90
14	2.45	2.87	3.29
15	2.82	3.25	3.68
16	3.18	3.62	4.06
17	3.53	3.99	4.44
18	3.88	4.35	4.81
19	4.22	4.70	5.17
20	4.56	5.04	5.53
21	4.88	5.38	5.88
22	5.20	5.71	6.22
23	5.51	6.03	6.55
24	5.81	6.34	6.87
25	6.11	6.65	7.19
26	6.39	6.94	7.49
27	6.66	7.22	7.78
28	6.92	7.49	8.07
29	7.17	7.76	8.34
30	7.41	8.01	8.60
31	7.64	8.25	8.85
32	7.86	8.47	9.09
33	8.06	8.69	9.31
34	8.25	8.89	9.53
35	8.43	9.08	9.73
36	8.60	9.26	9.91
37	8.75	9.42	10.09
38	8.89	9.57	10.25
39	9.01	9.70	10.39
40	9.12	9.82	10.52
41	9.21	9.92	10.63
42	9.29	10.01	10.73

1-2-38 Biparietal Diameter (BPD) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days

Output Unit: mm

Min Range: 12 weeks 0 days

Max Range: 42 weeks 0 days

GA	BPD (mm)			GA	BPD(mm)			GA	BPD (mm)			GA	BPD (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	17.4	20.3	23.9	20w0d	43.2	47.1	50.8	28w0d	67.4	72.0	76.6	36w0d	84.2	88.9	94.2
12w1d	17.9	20.8	24.4	20w1d	43.6	47.6	51.3	28w1d	67.9	72.4	77.0	36w1d	84.4	89.1	94.4
12w2d	18.3	21.3	24.9	20w2d	44.0	48.0	51.8	28w2d	68.3	72.8	77.4	36w2d	84.6	89.3	94.7
12w3d	18.8	21.7	25.3	20w3d	44.5	48.5	52.3	28w3d	68.7	73.2	77.8	36w3d	84.8	89.5	94.9
12w4d	19.3	22.2	25.8	20w4d	44.9	48.9	52.8	28w4d	69.1	73.5	78.2	36w4d	85.0	89.7	95.1
12w5d	19.7	22.7	26.3	20w5d	45.3	49.4	53.3	28w5d	69.5	73.9	78.5	36w5d	85.1	89.9	95.3
12w6d	20.2	23.2	26.7	20w6d	45.7	49.8	53.8	28w6d	69.9	74.3	78.9	36w6d	85.3	90.1	95.5
13w0d	20.7	23.7	27.2	21w0d	46.1	50.3	54.2	29w0d	70.3	74.7	79.3	37w0d	85.5	90.3	95.7
13w1d	21.2	24.2	27.7	21w1d	46.5	50.8	54.7	29w1d	70.7	75.0	79.6	37w1d	85.7	90.5	95.9
13w2d	21.6	24.7	28.2	21w2d	46.9	51.2	55.2	29w2d	71.0	75.4	80.0	37w2d	85.8	90.7	96.1
13w3d	22.1	25.2	28.6	21w3d	47.3	51.7	55.7	29w3d	71.4	75.8	80.3	37w3d	86.0	90.8	96.3
13w4d	22.6	25.7	29.1	21w4d	47.8	52.1	56.2	29w4d	71.8	76.1	80.7	37w4d	86.1	91.0	96.5
13w5d	23.1	26.2	29.6	21w5d	48.2	52.6	56.7	29w5d	72.2	76.5	81.1	37w5d	86.3	91.2	96.7
13w6d	23.6	26.7	30.1	21w6d	48.6	53.1	57.2	29w6d	72.5	76.8	81.4	37w6d	86.4	91.4	96.8
14w0d	24.1	27.1	30.6	22w0d	49.0	53.5	57.7	30w0d	72.9	77.2	81.8	38w0d	86.6	91.5	97.0
14w1d	24.6	27.7	31.1	22w1d	49.5	54.0	58.2	30w1d	73.3	77.5	82.1	38w1d	86.8	91.7	97.2
14w2d	25.1	28.2	31.5	22w2d	49.9	54.5	58.7	30w2d	73.6	77.9	82.5	38w2d	86.9	91.8	97.3
14w3d	25.6	28.7	32.0	22w3d	50.3	54.9	59.2	30w3d	74.0	78.2	82.8	38w3d	87.0	92.0	97.5
14w4d	26.1	29.2	32.5	22w4d	50.8	55.4	59.6	30w4d	74.3	78.6	83.2	38w4d	87.2	92.2	97.6
14w5d	26.6	29.7	33.0	22w5d	51.2	55.9	60.1	30w5d	74.7	78.9	83.5	38w5d	87.3	92.3	97.7
14w6d	27.1	30.2	33.5	22w6d	51.7	56.3	60.6	30w6d	75.0	79.2	83.8	38w6d	87.4	92.5	97.9
15w0d	27.6	30.7	34.0	23w0d	52.1	56.8	61.1	31w0d	75.3	79.6	84.2	39w0d	87.6	92.6	98.0
15w1d	28.1	31.2	34.5	23w1d	52.5	57.3	61.6	31w1d	75.7	79.9	84.5	39w1d	87.7	92.8	98.1
15w2d	28.6	31.7	35.0	23w2d	53.0	57.7	62.1	31w2d	76.0	80.2	84.8	39w2d	87.8	92.9	98.3
15w3d	29.1	32.2	35.4	23w3d	53.4	58.2	62.6	31w3d	76.3	80.5	85.2	39w3d	88.0	93.1	98.4
15w4d	29.6	32.7	35.9	23w4d	53.9	58.7	63.1	31w4d	76.6	80.9	85.5	39w4d	88.1	93.2	98.5
15w5d	30.0	33.2	36.4	23w5d	54.3	59.1	63.5	31w5d	76.9	81.2	85.8	39w5d	88.2	93.4	98.6
15w6d	30.5	33.7	36.9	23w6d	54.8	59.6	64.0	31w6d	77.2	81.5	86.1	39w6d	88.3	93.5	98.7
16w0d	31.0	34.2	37.4	24w0d	55.2	60.0	64.5	32w0d	77.5	81.8	86.4	40w0d	88.5	93.7	98.8
16w1d	31.5	34.7	37.8	24w1d	55.7	60.5	65.0	32w1d	77.8	82.1	86.8	40w1d	88.6	93.8	98.9
16w2d	32.0	35.1	38.3	24w2d	56.1	60.9	65.4	32w2d	78.1	82.4	87.1	40w2d	88.8	94.0	99.0
16w3d	32.5	35.6	38.8	24w3d	56.6	61.4	65.9	32w3d	78.4	82.7	87.4	40w3d	88.9	94.1	99.1
16w4d	32.9	36.1	39.3	24w4d	57.0	61.8	66.4	32w4d	78.7	83.0	87.7	40w4d	89.0	94.3	99.2
16w5d	33.4	36.6	39.8	24w5d	57.5	62.3	66.9	32w5d	79.0	83.3	88.0	40w5d	89.2	94.4	99.3
16w6d	33.9	37.1	40.2	24w6d	57.9	62.7	67.3	32w6d	79.2	83.6	88.3	40w6d	89.3	94.6	99.4
17w0d	34.3	37.5	40.7	25w0d	58.3	63.2	67.8	33w0d	79.5	83.8	88.6	41w0d	89.4	94.7	99.5
17w1d	34.8	38.0	41.2	25w1d	58.8	63.6	68.2	33w1d	79.8	84.1	88.9	41w1d	89.6	94.8	99.6

GA	BPD (mm)			GA	BPD(mm)			GA	BPD (mm)			GA	BPD (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
17w2d	35.2	38.5	41.7	25w2d	59.2	64.1	68.7	33w2d	80.0	84.4	89.2	41w2d	89.7	95.0	99.7
17w3d	35.7	38.9	42.2	25w3d	59.7	64.5	69.1	33w3d	80.3	84.7	89.4	41w3d	89.9	95.1	99.8
17w4d	36.1	39.4	42.6	25w4d	60.1	64.9	69.6	33w4d	80.5	84.9	89.7	41w4d	90.0	95.3	99.9
17w5d	36.6	39.9	43.1	25w5d	60.5	65.4	70.0	33w5d	80.8	85.2	90.0	41w5d	90.2	95.4	100.0
17w6d	37.0	40.3	43.6	25w6d	61.0	65.8	70.5	33w6d	81.0	85.4	90.3	41w6d	90.3	95.5	100.1
18w0d	37.4	40.8	44.1	26w0d	61.4	66.2	70.9	34w0d	81.3	85.7	90.6	42w0d	90.4	95.7	100.2
18w1d	37.9	41.2	44.5	26w1d	61.9	66.7	71.3	34w1d	81.5	86.0	90.9				
18w2d	38.3	41.7	45.0	26w2d	62.3	67.1	71.8	34w2d	81.7	86.2	91.1				
18w3d	38.7	42.2	45.5	26w3d	62.8	67.5	72.2	34w3d	82.0	86.4	91.4				
18w4d	39.1	42.6	46.0	26w4d	63.2	67.9	72.6	34w4d	82.2	86.7	91.7				
18w5d	39.5	43.1	46.5	26w5d	63.6	68.3	73.0	34w5d	82.4	86.9	91.9				
18w6d	40.0	43.5	46.9	26w6d	64.1	68.8	73.4	34w6d	82.6	87.2	92.2				
19w0d	40.4	44.0	47.4	27w0d	64.5	69.2	73.9	35w0d	82.8	87.4	92.5				
19w1d	40.8	44.4	47.9	27w1d	64.9	69.6	74.3	35w1d	83.0	87.6	92.7				
19w2d	41.2	44.9	48.4	27w2d	65.3	70.0	74.7	35w2d	83.2	87.8	93.0				
19w3d	41.6	45.3	48.9	27w3d	65.8	70.4	75.1	35w3d	83.4	88.1	93.2				
19w4d	42.0	45.8	49.3	27w4d	66.2	70.8	75.5	35w4d	83.6	88.3	93.5				
19w5d	42.4	46.2	49.8	27w5d	66.6	71.2	75.9	35w5d	83.8	88.5	93.7				
19w6d	42.8	46.7	50.3	27w6d	67.0	71.6	76.3	35w6d	84.0	88.7	94.0				

1-2-39 Biparietal Diameter (BPD) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	BPD (cm)			GA (weeks)	BPD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	2.10	2.50	2.90	27.5	6.80	7.30	7.80
13.0	2.30	2.60	3.00	28.0	6.90	7.40	7.90
13.5	2.40	2.80	3.10	28.5	7.10	7.60	8.10
14.0	2.50	2.90	3.30	29.0	7.20	7.70	8.20
14.5	2.70	3.10	3.50	29.5	7.30	7.80	8.40
15.0	2.80	3.20	3.60	30.0	7.40	8.00	8.50
15.5	3.00	3.40	3.80	30.5	7.60	8.10	8.60
16.0	3.10	3.50	3.90	31.0	7.70	8.20	8.80
16.5	3.30	3.70	4.10	31.5	7.80	8.30	8.90
17.0	3.50	3.90	4.30	32.0	7.90	8.50	9.00
17.5	3.60	4.00	4.50	32.5	8.00	8.60	9.10
18.0	3.80	4.20	4.60	33.0	8.10	8.70	9.20
18.5	4.00	4.40	4.80	33.5	8.20	8.80	9.30
19.0	4.10	4.60	5.00	34.0	8.30	8.90	9.50
19.5	4.30	4.70	5.20	34.5	8.40	9.00	9.60
20.0	4.50	4.90	5.30	35.0	8.50	9.10	9.70
20.5	4.60	5.10	5.50	35.5	8.60	9.20	9.70
21.0	4.80	5.20	5.70	36.0	8.70	9.20	9.80
21.5	4.90	5.40	5.90	36.5	8.70	9.30	9.90
22.0	5.10	5.60	6.00	37.0	8.80	9.40	10.00
22.5	5.30	5.70	6.20	37.5	8.90	9.50	10.10
23.0	5.40	5.90	6.40	38.0	8.90	9.50	10.10
23.5	5.60	6.10	6.50	38.5	9.00	9.60	10.20
24.0	5.70	6.20	6.70	39.0	9.00	9.60	10.30
24.5	5.90	6.40	6.90	39.5	9.10	9.70	10.30
25.0	6.10	6.50	7.00	40.0	9.10	9.70	10.30
25.5	6.20	6.70	7.20	40.5	9.10	9.70	10.40
26.0	6.40	6.80	7.30	41.0	9.10	9.80	10.40
26.5	6.50	7.00	7.50	41.5	9.20	9.80	10.40
27.0	6.60	7.10	7.70				

1-2-40 Biparietal Diameter (BPD) McLENNAN

Reference: Construction of modern Australian first trimester ultrasound dating and growth charts Journal of Medical Imaging and Radiation Oncology (2008) 52, 471–479

Input Unit: d (days)
Output Unit: mm
Min Range: 65 days
Max Range: 97 days

GA (d)	BPD (mm)		
	5%	50%	95%
65	9.9	10.5	11.1
66	10.3	11.0	11.7
67	10.7	11.5	12.3
68	11.1	12.0	12.9
69	11.5	12.5	13.5
70	11.9	13.0	14.1
71	12.3	13.5	14.6
72	12.7	14.0	15.2
73	13.1	14.4	15.7
74	13.5	14.9	16.3
75	13.9	15.4	16.8
76	14.3	15.9	17.4
77	14.7	16.3	17.9
78	15.1	16.8	18.4
79	15.5	17.3	19.0
80	15.9	17.7	19.5
81	16.3	18.2	20.0
82	16.7	18.6	20.5
83	17.1	19.1	21.0
84	17.5	19.5	21.5
85	17.9	20.0	22.0
86	18.3	20.4	22.5
87	18.7	20.8	23.0
88	19.1	21.3	23.5
89	19.5	21.7	23.9
90	19.9	22.1	24.4
91	20.3	22.6	24.9
92	20.7	23.0	25.3
93	21.1	23.4	25.8
94	21.4	23.9	26.3
95	21.8	24.3	26.7
96	22.2	24.7	27.2
97	22.6	25.1	27.6

1-2-41 Biparietal Diameter (BPD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	BPD (cm)		
	5th centile	Median	95th centile
14	2.80	3.10	3.40
15	3.10	3.40	3.70
16	3.40	3.70	4.00
17	3.60	4.00	4.30
18	3.90	4.30	4.70
19	4.20	4.60	5.00
20	4.50	4.90	5.40
21	4.80	5.20	5.70
22	5.10	5.60	6.10
23	5.40	5.90	6.40
24	5.70	6.20	6.80
25	6.00	6.60	7.10
26	6.30	6.90	7.50
27	6.60	7.20	7.80
28	6.90	7.50	8.10
29	7.20	7.80	8.50
30	7.40	8.10	8.80
31	7.70	8.30	9.00
32	7.90	8.60	9.30
33	8.10	8.80	9.60
34	8.30	9.00	9.80
35	8.50	9.20	10.00
36	8.60	9.40	10.20
37	8.70	9.50	10.30
38	8.80	9.60	10.40
39	8.90	9.70	10.50

1-2-42 Biparietal Diameter (BPD) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	BPD (cm)		GA	BPD (cm)		GA	BPD (cm)		GA	BPD (cm)	
(weeks)	mean	±1.5SD	(weeks)	mean	±1.5SD	(weeks)	mean	±1.5SD	(weeks)	mean	±1.5SD
10w0d	1.33	0.29	17w5d	4.10	0.41	25w3d	6.51	0.50	33w1d	8.46	0.56
10w1d	1.38	0.29	17w6d	4.15	0.41	25w4d	6.55	0.50	33w2d	8.48	0.56
10w2d	1.44	0.29	18w0d	4.20	0.41	25w5d	6.59	0.50	33w3d	8.51	0.56
10w3d	1.50	0.29	18w1d	4.24	0.41	25w6d	6.63	0.50	33w4d	8.54	0.56
10w4d	1.55	0.29	18w2d	4.29	0.41	26w0d	6.67	0.50	33w5d	8.57	0.56
10w5d	1.61	0.29	18w3d	4.34	0.41	26w1d	6.71	0.50	33w6d	8.60	0.56
10w6d	1.66	0.30	18w4d	4.39	0.41	26w2d	6.75	0.50	34w0d	8.62	0.56
11w0d	1.72	0.30	18w5d	4.43	0.41	26w3d	6.80	0.50	34w1d	8.65	0.56
11w1d	1.77	0.30	18w6d	4.48	0.42	26w4d	6.84	0.50	34w2d	8.68	0.56
11w2d	1.83	0.30	19w0d	4.53	0.42	26w5d	6.88	0.50	34w3d	8.70	0.56
11w3d	1.88	0.30	19w1d	4.57	0.42	26w6d	6.92	0.51	34w4d	8.73	0.56
11w4d	1.93	0.30	19w2d	4.62	0.42	27w0d	6.95	0.51	34w5d	8.75	0.56
11w5d	1.99	0.32	19w3d	4.67	0.42	27w1d	6.99	0.51	34w6d	8.78	0.56
11w6d	2.04	0.32	19w4d	4.71	0.42	27w2d	7.03	0.51	35w0d	8.80	0.56
12w0d	2.09	0.32	19w5d	4.76	0.42	27w3d	7.07	0.51	35w1d	8.83	0.57
12w1d	2.15	0.32	19w6d	4.80	0.42	27w4d	7.11	0.51	35w2d	8.85	0.57
12w2d	2.20	0.32	20w0d	4.85	0.44	27w5d	7.15	0.51	35w3d	8.87	0.57
12w3d	2.25	0.32	20w1d	4.90	0.44	27w6d	7.19	0.51	35w4d	8.90	0.57
12w4d	2.31	0.32	20w2d	4.94	0.44	28w0d	7.23	0.51	35w5d	8.92	0.57
12w5d	2.36	0.33	20w3d	4.99	0.44	28w1d	7.27	0.51	35w6d	8.94	0.57
12w6d	2.41	0.33	20w4d	5.03	0.44	28w2d	7.30	0.51	36w0d	8.96	0.57
13w0d	2.46	0.33	20w5d	5.08	0.44	28w3d	7.34	0.51	36w1d	8.98	0.57
13w1d	2.52	0.33	20w6d	5.12	0.44	28w4d	7.38	0.53	36w2d	9.00	0.57
13w2d	2.57	0.33	21w0d	5.17	0.44	28w5d	7.42	0.53	36w3d	9.02	0.57
13w3d	2.62	0.33	21w1d	5.21	0.44	28w6d	7.45	0.53	36w4d	9.04	0.57
13w4d	2.67	0.35	21w2d	5.26	0.45	29w0d	7.49	0.53	36w5d	9.06	0.57
13w5d	2.72	0.35	21w3d	5.30	0.45	29w1d	7.53	0.53	36w6d	9.08	0.57
13w6d	2.77	0.35	21w4d	5.35	0.45	29w2d	7.56	0.53	37w0d	9.10	0.57
14w0d	2.82	0.35	21w5d	5.39	0.45	29w3d	7.60	0.53	37w1d	9.12	0.57
14w1d	2.87	0.35	21w6d	5.44	0.45	29w4d	7.64	0.53	37w2d	9.14	0.57
14w2d	2.93	0.35	22w0d	5.48	0.45	29w5d	7.67	0.53	37w3d	9.15	0.57
14w3d	2.98	0.35	22w1d	5.52	0.45	29w6d	7.71	0.53	37w4d	9.17	0.57
14w4d	3.03	0.36	22w2d	5.57	0.45	30w0d	7.74	0.53	37w5d	9.18	0.57
14w5d	3.08	0.36	22w3d	5.61	0.45	30w1d	7.78	0.53	37w6d	9.20	0.57
14w6d	3.13	0.36	22w4d	5.66	0.47	30w2d	7.81	0.53	38w0d	9.21	0.57
15w0d	3.18	0.36	22w5d	5.70	0.47	30w3d	7.85	0.54	38w1d	9.23	0.57
15w1d	3.23	0.36	22w6d	5.74	0.47	30w4d	7.88	0.54	38w2d	9.24	0.57
15w2d	3.28	0.36	23w0d	5.79	0.47	30w5d	7.92	0.54	38w3d	9.26	0.59
15w3d	3.33	0.36	23w1d	5.83	0.47	30w6d	7.95	0.54	38w4d	9.27	0.59
15w4d	3.38	0.38	23w2d	5.87	0.47	31w0d	7.98	0.54	38w5d	9.28	0.59
15w5d	3.42	0.38	23w3d	5.92	0.47	31w1d	8.02	0.54	38w6d	9.29	0.59
15w6d	3.47	0.38	23w4d	5.96	0.47	31w2d	8.05	0.54	39w0d	9.30	0.59
16w0d	3.52	0.38	23w5d	6.00	0.47	31w3d	8.08	0.54	39w1d	9.31	0.59
16w1d	3.57	0.38	23w6d	6.05	0.48	31w4d	8.12	0.54	39w2d	9.32	0.59
16w2d	3.62	0.38	24w0d	6.09	0.48	31w5d	8.15	0.54	39w3d	9.33	0.59

GA (weeks)	BPD (cm)		GA (weeks)	BPD (cm)		GA (weeks)	BPD (cm)		GA (weeks)	BPD (cm)	
	mean	±1.5SD		mean	±1.5SD		mean	±1.5SD		mean	±1.5SD
16w3d	3.67	0.38	24w1d	6.13	0.48	31w6d	8.18	0.54	39w4d	9.34	0.59
16w4d	3.72	0.38	24w2d	6.17	0.48	32w0d	8.21	0.54	39w5d	9.35	0.59
16w5d	3.77	0.39	24w3d	6.22	0.48	32w1d	8.24	0.54	39w6d	9.36	0.59
16w6d	3.81	0.39	24w4d	6.26	0.48	32w2d	8.27	0.54	40w0d	9.36	0.59
17w0d	3.86	0.39	24w5d	6.30	0.48	32w3d	8.31	0.54			
17w1d	3.91	0.39	24w6d	6.34	0.48	32w4d	8.34	0.56			
17w2d	3.96	0.39	25w0d	6.39	0.48	32w5d	8.37	0.56			
17w3d	4.01	0.39	25w1d	6.43	0.48	32w6d	8.40	0.56			
17w4d	4.05	0.39	25w2d	6.47	0.50	33w0d	8.43	0.56			

1-2-43 Biparietal Diameter (BPD) PERSSON

Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)	GA (d)	BPD (mm)
49	3.0	109	33.8	151	52.5	193	71.2	235	86.8	277	95.1
51	4.0	110	34.2	152	53.0	194	71.6	236	87.0	278	95.2
53	5.0	111	34.6	153	53.4	195	72.0	237	87.3	279	95.3
55	6.0	112	35.0	154	53.8	196	72.5	238	87.5	280	95.4
57	7.0	113	35.5	155	54.2	197	73.0	239	87.8	281	95.5
59	8.0	114	36.0	156	54.6	198	73.5	240	88.0	282	95.6
61	9.0	115	36.5	157	55.0	199	74.0	241	88.3	283	95.7
63	10.0	116	37.0	158	55.5	200	74.4	242	88.5	284	95.8
66	11.0	117	37.4	159	56.0	201	74.8	243	88.8	285	95.9
68	12.0	118	37.8	160	56.5	202	75.2	244	89.0	286	96.0
70	13.0	119	38.2	161	57.0	203	75.6	245	89.2	287	96.1
72	14.0	120	38.6	162	57.5	204	76.0	246	89.4	288	96.2
74	15.0	121	39.0	163	58.0	205	76.5	247	89.6	289	96.3
77	16.0	122	39.5	164	58.4	206	77.0	248	89.8	290	96.3
79	17.0	123	40.0	165	58.8	207	77.5	249	90.0	291	96.4
81	18.0	124	40.5	166	59.2	208	78.0	250	90.2	292	96.5
83	19.0	125	41.0	167	59.6	209	78.4	251	90.4	293	96.6
84	19.6	126	41.4	168	60.0	210	78.8	252	90.6	294	96.7
85	20.3	127	41.8	169	60.5	211	79.2	253	90.8	295	96.8
86	20.9	128	42.2	170	61.0	212	79.6	254	91.0	296	96.85
87	21.5	129	42.6	171	61.5	213	80.0	255	91.2	297	96.9
88	22.0	130	43.0	172	62.0	214	80.3	256	91.4	298	96.93
89	22.6	131	43.5	173	62.4	215	80.7	257	91.6	299	96.06
90	23.2	132	44.0	174	62.8	216	81.0	258	91.8	300	97.0
91	23.9	133	44.5	175	63.2	217	81.3	259	92.0		
92	24.5	134	45.0	176	63.6	218	81.7	260	92.2		
93	25.0	135	45.4	177	64.0	219	82.0	261	92.4		
94	26.0	136	45.8	178	64.5	220	82.3	262	92.6		
95	26.5	137	46.2	179	65.0	221	82.7	263	92.8		
96	27.0	138	46.6	180	65.5	222	83.0	264	93.0		
97	28.0	139	47.0	181	66.0	223	83.3	265	93.2		
98	28.5	140	47.5	182	66.4	224	83.7	266	93.4		
99	29.0	141	48.0	183	66.8	225	84.0	267	93.6		
100	29.5	142	48.5	184	67.2	226	84.3	268	93.8		
101	30.0	143	49.0	185	67.6	227	84.7	269	94.0		
102	30.5	144	49.4	186	68.0	228	85.0	270	94.2		
103	31.0	145	49.8	187	68.5	229	85.3	271	94.4		
104	31.5	146	50.2	188	69.0	230	85.5	272	94.6		
105	32.0	147	50.6	189	69.5	231	85.8	273	94.7		
106	32.5	148	51.0	190	70.0	232	86.0	274	94.8		
107	33.0	149	51.5	191	70.4	233	86.3	275	94.9		
108	33.4	150	52.0	192	70.8	234	86.6	276	95.0		

1-2-44 Biparietal Diameter (BPD) SABBAGHA

Reference: Sabbagha R.E., Barton B.A., Barton F.B., Kingas E., Orgill J., Turner J.H.
"Sonar biparietal diameter II. Predictive of three fetal growth patterns leading to a closer assessment of gestational age and neonatal weight"
American Journal of Obstetrics and Gynecology; October 15; 1976; pp.485-490

GA (weeks)	BPD (cm)			GA (weeks)	BPD (cm)		
	5%	50%	95%		5%	50%	95%
16	3.10	3.70	4.50	29	6.80	7.50	8.30
17	3.40	4.00	4.70	30	7.10	7.80	8.60
18	3.70	4.30	4.90	31	7.30	8.00	8.80
19	3.90	4.50	5.10	32	7.50	8.30	9.00
20	4.20	4.70	5.30	33	7.70	8.50	9.10
21	4.50	5.00	5.50	34	7.90	8.70	9.30
22	4.90	5.30	5.80	35	8.20	8.80	9.60
23	5.20	5.60	6.20	36	8.30	9.00	9.70
24	5.50	5.90	6.60	37	8.40	9.20	9.80
25	5.80	6.20	7.00	38	8.50	9.30	9.90
26	6.10	6.60	7.30	39	8.70	9.40	10.00
27	6.40	6.90	7.60	40	8.90	9.50	10.10
28	6.60	7.20	7.90				

1-2-45 Biparietal Diameter (BPD) SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Input Unit: w (weeks) Min Range: 10.0 weeks
Output Unit: cm Max Range: 42.0 weeks s

NOTE: Table used up to Voluson i/e BT07

Used for Graph Display

GA (weeks)	BPD (cm)			GA (weeks)	BPD (cm)		
	-1.64SD	Mean	+1.64SD		-1.64SD	Mean	+1.64SD
10	1.05	1.43	1.81	27	6.34	6.87	7.41
11	1.37	1.76	2.15	28	6.59	7.14	7.68
12	1.70	2.10	2.50	29	6.83	7.39	7.94
13	2.04	2.44	2.85	30	7.06	7.63	8.19
14	2.37	2.78	3.20	31	7.28	7.85	8.42
15	2.70	3.12	3.55	32	7.48	8.06	8.65
16	3.03	3.46	3.90	33	7.67	8.26	8.85
17	3.35	3.80	4.24	34	7.85	8.45	9.04
18	3.68	4.13	4.58	35	8.01	8.61	9.22
19	4.00	4.46	4.92	36	8.15	8.76	9.38
20	4.32	4.79	5.26	37	8.27	8.90	9.52
21	4.63	5.11	5.59	38	8.38	9.01	9.65
22	4.93	5.42	5.91	39	8.46	9.11	9.75
23	5.23	5.73	6.23	40	8.53	9.18	9.84
24	5.52	6.03	6.53	41	8.58	9.24	9.90
25	5.80	6.32	6.84	42	8.60	9.28	9.95
26	6.08	6.60	7.13				

NOTE: Table used at Voluson i/e BT09 and upwards

Used for SD Display (on system ± 1.64SD is used)

$\pm 1SD = 0{,}796 \bullet GA \bullet 10^{-2} + 1{,}73$ (see Table 1 in Reference above).....GA in days, 1SD in mm

The SD values in the table below are calculated using the formula above

GA (w+d)	BPD (mm)		GA (w+d)	BPD (mm)		GA (w+d)	BPD (mm)	
	mean	± 1SD		mean	± 1SD		mean	± 1SD
10+1	13	2.3	18+1	40	2.7	26+6	67	3.2
10+3	14	2.3	18+3	41	2.8	27+2	68	3.3
10+5	15	2.3	18+5	42	2.8	27+4	69	3.3
11+0	16	2.3	19+0	43	2.8	28+0	70	3.3
11+2	17	2.4	19+2	44	2.8	28+3	71	3.3
11+4	18	2.4	19+4	45	2.8	28+5	72	3.3
11+6	19	2.4	20+0	46	2.8	29+1	73	3.4
12+1	20	2.4	20+2	47	2.9	29+4	74	3.4
12+3	21	2.4	20+4	48	2.9	30+0	75	3.4
12+6	22	2.4	20+6	49	2.9	30+3	76	3.4
13+1	23	2.5	21+1	50	2.9	30+6	77	3.4
13+3	24	2.5	21+3	51	2.9	31+2	78	3.5
13+5	25	2.5	21+6	52	2.9	31+5	79	3.5
14+0	26	2.5	22+1	53	3.0	32+1	80	3.5
14+2	27	2.5	22+3	54	3.0	32+5	81	3.6
14+4	28	2.5	22+5	55	3.0	33+1	82	3.6
14+6	29	2.6	23+1	56	3.0	33+5	83	3.6
15+1	30	2.6	23+3	57	3.0	34+2	84	3.6
15+3	31	2.6	23+5	58	3.1	34+6	85	3.7
15+5	32	2.6	24+1	59	3.1	35+3	86	3.7
16+0	33	2.6	24+3	60	3.1	36+0	87	3.7
16+2	34	2.6	24+5	61	3.1	36+5	88	3.8
16+4	35	2.7	25+1	62	3.1	37+4	89	3.8
16+6	36	2.7	25+3	63	3.1	38+3	90	3.9
17+1	37	2.7	25+5	64	3.2			
17+4	38	2.7	26+1	65	3.2			
17+6	39	2.7	26+3	66	3.2			

1-2-46 Biparietal Diameter (BPD) SIRIRAJ

Reference: Siwadune T, Sunsaneevithayakul P, Titapant V, Boriboonhirunsarn D, Kanokpongsakdi S. Charts of Thai fetal biometries: 2. Biparietal diameter. J Med Assoc Thai 2000; 83: 292-298

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12,0 weeks
Max Range: 41,0 weeks

GA (weeks)	BPD (mm)		
	10^{th}Cent.	50^{th}Cent.	90^{th}Cent.
12	18.85	20.47	22.10
13	21.72	23.39	25.05
14	24.65	26.36	28.07
15	27.64	29.39	31.14
16	30.65	32.45	34.25
17	33.70	35.55	37.40
18	36.76	38.66	40.57
19	39.82	41.78	43.74
20	42.87	44.89	46.91
21	45.91	47.99	50.07
22	48.91	51.06	53.21
23	51.88	54.10	56.32
24	54.79	57.08	59.38
25	57.64	60.01	62.38
26	60.42	62.87	65.31
27	63.11	65.64	68.17
28	65.71	68.32	70.94
29	68.20	70.90	73.61
30	70.58	73.37	76.16
31	72.82	75.71	78.59
32	74.93	77.91	80.90
33	76.89	79.97	83.05
34	78.68	81.87	85.05
35	80.30	83.69	86.89
36	81.74	85.15	88.55
37	82.99	86.50	90.02
38	84.03	87.66	91.29
39	84.85	88.60	92.35
40	85.45	89.32	93.19
41	85.81	89.80	93.80

1-2-47 Biparietal Diameter (BPD) TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

Table values are derived from the graphs of the publication.

GA (days)	BPD (cm)		
	5%	50%	95%
84	13.88	19.58	24.55
91	17.61	22.99	27.60
98	21.26	26.41	30.74
105	24.83	29.82	33.97
112	28.31	33.20	37.27
119	31.70	36.54	40.62
126	35.00	39.86	43.99
133	38.22	43.14	47.38
140	41.35	46.37	50.77
147	44.39	49.56	54.15
154	47.35	52.70	57.49
161	50.22	55.78	60.79
168	53.00	58.80	64.03
175	55.69	61.75	67.20
182	58.30	64.63	70.28
189	60.83	67.42	73.27
196	63.26	70.13	76.14
203	65.61	72.75	78.90
210	67.87	75.27	81.53
217	70.05	77.68	84.01
224	72.14	79.97	86.35
231	74.14	82.14	88.53
238	76.05	84.18	90.54
245	77.88	86.07	92.37
252	79.62	87.82	94.02
259	81.27	89.41	95.48
266	82.84	90.84	96.75
273	84.32	92.08	97.81
280	85.72	93.14	98.67
287	87.02	94.01	99.31

1-2-48 Biparietal Diameter (BPD) VERBURG

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: (w) weeks
Output Unit: mm
Min Range: 10.0 weeks
Max Range: 40.0 weeks

Biparietal diameter	Mean	$-28.2805 + 4.0352 \times GA - 0.0005024 \times GA^3$
	SD	$0.2388 + 0.0940 \times GA$

GA (weeks)	BPD (mm)			GA (weeks)	BPD (mm)		
	5%	50%	95%		5%	50%	95%
10	9.4	11.6	13.8	26	62.8	67.8	72.8
11	13.0	15.4	17.8	27	65.6	70.8	76.0
12	16.7	19.3	21.8	28	68.3	73.7	79.1
13	20.3	23.1	25.8	29	70.9	76.5	82.1
14	23.9	26.8	29.8	30	73.5	79.2	85.0
15	27.4	30.6	33.7	31	75.9	81.8	87.8
16	30.9	34.2	37.5	32	78.3	84.4	90.5
17	34.4	37.9	41.3	33	80.5	86.8	93.1
18	37.8	41.4	45.1	34	82.7	89.2	95.6
19	41.1	44.9	48.7	35	84.8	91.4	98.0
20	44.4	48.4	52.4	36	86.7	93.6	100.4
21	47.6	51.8	56.0	37	88.6	95.6	102.6
22	50.8	55.1	59.5	38	90.3	97.5	104.7
23	53.9	58.4	62.9	39	91.9	99.3	106.6
24	56.9	61.6	66.3	40	93.4	101.0	108.5
25	59.9	64.8	69.6				

1-2-49 Clavicula (CLAV) YARKONI

Reference: *Yarkoni S., Schmidt W., Jeanty P., Reece A., Hobbins J.C.*
"Clavicular Measurement: A New Biometric Parameter for Fetal Evaluation"
Journal of Ultrasound in Medicine 4:467-470, September 1985.

$$Clav = 0{,}1118303 + 0{,}09788639 \times GA$$

Input Unit: weeks
Output Unit: cm
Min Range: 15.0 weeks
Max Range: 40.0 weeks

Standard Deviation: 2.92 cm

GA (weeks)	Clav (cm)		
	5%	50%	95%
15	1.10	1.60	2.10
16	1.20	1.70	2.20
17	1.30	1.80	2.30
18	1.40	1.90	2.40
19	1.50	2.00	2.50
20	1.60	2.10	2.60
21	1.70	2.20	2.70
22	1.80	2.30	2.80
23	1.90	2.40	2.90
24	2.00	2.50	3.00
25	2.10	2.60	3.10
26	2.20	2.70	3.20
27	2.30	2.80	3.30
28	2.40	2.90	3.40
29	2.50	3.00	3.50
30	2.60	3.10	3.60
31	2.70	3.20	3.70
32	2.80	3.30	3.80
33	2.90	3.40	3.90
34	3.00	3.50	4.00
35	3.10	3.60	4.10
36	3.20	3.70	4.20
37	3.30	3.80	4.30
38	3.40	3.90	4.40
39	3.50	4.00	4.50
40	3.60	4.10	4.60

1-2-50 Cisterna Magna (CM) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	CM (cm)		
	5%	50%	95%
14	1.9	3.5	5.3
15	2.1	3.8	5.7
16	2.4	4.1	6.0
17	2.6	4.3	6.3
18	2.8	4.6	6.6
19	3.1	4.9	6.9
20	3.3	5.1	7.2
21	3.5	5.4	7.5
22	3.7	5.6	7.7
23	3.9	5.8	8.0
24	4.1	6.0	8.2
25	4.3	6.2	8.5
26	4.4	6.4	8.7
27	4.6	6.6	8.9
28	4.7	6.8	9.1
29	4.9	6.9	9.3
30	5.0	7.0	9.4
31	5.1	7.2	9.6
32	5.2	7.3	9.7
33	5.3	7.4	9.8
34	5.3	7.5	9.9
35	5.4	7.5	10.0
36	5.4	7.6	10.0
37	5.4	7.6	10.1
38	5.5	7.6	10.1
39	5.5	7.6	10.1

1-2-51 Crown-Rump Length (CRL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (w+d)	CRL (cm)	GA (w+d)	CRL (cm)	GA (w+d)	CRL (cm)
5w2d	0.1	8w3d	2.0	11w4d	5.2
5w3d	0.2	8w4d	2.1	11w5d	5.5
5w4d	0.3	8w5d	2.2	11w6d	5.6
5w5d	0.3	8w6d	2.2	12w0d	5.7
5w6d	0.4	9w0d	2.3	12w1d	5.8
6w0d	0.4	9w1d	2.4	12w2d	6.0
6w1d	0.5	9w2d	2.6	12w3d	6.1
6w2d	0.6	9w3d	2.7	12w4d	6.3
6w3d	0.7	9w4d	2.8	12w5d	6.4
6w4d	0.8	9w5d	2.9	12w6d	6.5
6w5d	0.9	9w6d	3.1	13w0d	6.8
6w6d	1.0	10w0d	3.4	13w1d	7.0
7w0d	1.1	10w1d	3.6	13w2d	7.2
7w1d	1.1	10w2d	3.7	13w3d	7.4
7w2d	1.2	10w3d	3.8	13w4d	7.6
7w3d	1.2	10w4d	3.9	13w5d	7.7
7w4d	1.3	10w5d	3.9	13w6d	8.0
7w5d	1.4	10w6d	4.0	14w0d	8.1
7w6d	1.5	11w0d	4.4	14w1d	8.4
8w0d	1.7	11w1d	4.5	14w2d	8.5
8w1d	1.8	11w2d	4.7	14w3d	8.6
8w2d	1.9	11w3d	4.8	14w4d	8.7

1-2-52 Crown-Rump Length (CRL) HADLOCK

Reference: Hadlock F., Shah Y.P, Kanon D.J., Math B., Lindsey J.V., "Fetal Crown-Rump Length: Reevaluation of Relation to Menstrual Age (5-18 weeks) with High-Resolution Real-Time Ultrasound." Radiology, 182:501-505, 1992.

$$CRL = e^{-6{,}983 + 1{,}4498 \times GA - 0{,}078345 \times GA^2 + 0{,}001501 \times GA^3}$$

Input Unit: w (weeks)

Output Unit: cm

Min Range: 5w0d

Max Range: 18w0d

GA (Age)	CM (cm)			GA (Age)	CM (cm)			GA (Age)	CM (cm)		
	-1SD	50%	+1SD		-1SD	50%	+1SD		-1SD	50%	+1SD
5w0d	0.20	0.22	0.24	9w3d	2.45	2.66	2.88	13w6d	7.20	7.82	8.45
5w1d	0.23	0.25	0.27	9w4d	2.58	2.81	3.03	14w0d	7.34	7.98	8.62
5w2d	0.25	0.28	0.30	9w5d	2.72	2.96	3.19	14w1d	7.49	8.14	8.79
5w3d	0.28	0.31	0.33	9w6d	2.86	3.11	3.35	14w2d	7.63	8.30	8.96
5w4d	0.31	0.34	0.37	10w0d	3.00	3.26	3.52	14w3d	7.77	8.45	9.13
5w5d	0.35	0.38	0.41	10w1d	3.14	3.42	3.69	14w4d	7.91	8.60	9.29
5w6d	0.38	0.42	0.45	10w2d	3.29	3.58	3.86	14w5d	8.05	8.75	9.45
6w0d	0.42	0.46	0.49	10w3d	3.44	3.74	4.04	14w6d	8.19	8.90	9.61
6w1d	0.46	0.50	0.54	10w4d	3.59	3.90	4.21	15w0d	8.32	9.05	9.77
6w2d	0.51	0.55	0.60	10w5d	3.74	4.07	4.39	15w1d	8.45	9.19	9.93
6w3d	0.56	0.61	0.65	10w6d	3.90	4.24	4.57	15w2d	8.59	9.33	10.08
6w4d	0.61	0.66	0.71	11w0d	4.05	4.41	4.76	15w3d	8.72	9.47	10.23
6w5d	0.66	0.72	0.78	11w1d	4.21	4.58	4.94	15w4d	8.85	9.62	10.38
6w6d	0.72	0.79	0.85	11w2d	4.37	4.75	5.13	15w5d	8.97	9.75	10.53
7w0d	0.79	0.85	0.92	11w3d	4.53	4.92	5.32	15w6d	9.10	9.89	10.68
7w1d	0.85	0.93	1.00	11w4d	4.69	5.10	5.50	16w0d	9.23	10.03	10.83
7w2d	0.92	1.00	1.08	11w5d	4.85	5.27	5.69	16w1d	9.35	10.17	10.98
7w3d	1.00	1.08	1.17	11w6d	5.01	5.45	5.88	16w2d	9.48	10.30	11.13
7w4d	1.07	1.17	1.26	12w0d	5.17	5.62	6.07	16w3d	9.60	10.44	11.27
7w5d	1.16	1.26	1.36	12w1d	5.33	5.80	6.26	16w4d	9.73	10.57	11.42
7w6d	1.24	1.35	1.46	12w2d	5.49	5.97	6.45	16w5d	9.85	10.71	11.57
8w0d	1.33	1.45	1.56	12w3d	5.65	6.15	6.64	16w6d	9.98	10.85	11.71
8w1d	1.43	1.55	1.67	12w4d	5.81	6.32	6.82	17w0d	10.10	10.98	11.86
8w2d	1.52	1.66	1.79	12w5d	5.97	6.49	7.01	17w1d	10.23	11.12	12.01
8w3d	1.63	1.77	1.91	12w6d	6.13	6.66	7.20	17w2d	10.36	11.26	12.16
8w4d	1.73	1.88	2.03	13w0d	6.29	6.83	7.38	17w3d	10.49	11.40	12.31
8w5d	1.84	2.00	2.16	13w1d	6.44	7.00	7.56	17w4d	10.62	11.54	12.47
8w6d	1.96	2.13	2.30	13w2d	6.60	7.17	7.74	17w5d	10.75	11.69	12.62
9w0d	2.08	2.26	2.44	13w3d	6.75	7.34	7.92	17w6d	10.89	11.83	12.78
9w1d	2.20	2.39	2.58	13w4d	6.90	7.50	8.10	18w0d	11.02	11.98	12.94
9w2d	2.32	2.52	2.73	13w5d	7.05	7.66	8.28				

1-2-53 Crown-Rump Length (CRL) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology." Springer-Verlag, New York, 1986, p.438

GA (w+d)	CRL (cm)			GA (w+d)	CRL (cm)		
	-2SD	Mean	+2SD		-2SD	Mean	+2SD
6w1d	0.23	0.69	1.15	12w2d	4.00	5.56	7.13
6w2d	0.28	0.76	1.25	12w4d	4.32	5.94	7.55
6w3d	0.32	0.83	1.34	12w6d	4.64	6.31	7.98
6w4d	0.36	0.90	1.43	13w2d	5.13	6.88	8.63
6w5d	0.39	0.96	1.52	13w4d	5.56	7.26	9.06
6w6d	0.43	1.02	1.61	13w6d	5.78	7.63	9.48
7w0d	0.47	1.08	1.69	14w2d	6.25	8.18	10.11
7w1d	0.50	1.14	1.78	14w4d	6.56	8.54	10.52
7w2d	0.54	1.21	1.87	14w6d	6.86	8.89	10.92
7w3d	0.58	1.27	1.96	15w2d	7.28	9.39	11.50
7w4d	0.62	1.33	2.05	15w4d	7.55	9.71	11.87
7w5d	0.66	1.40	2.14	15w6d	7.80	10.01	12.22
7w6d	0.70	1.47	2.24	16w2d	8.15	10.44	12.73
8w0d	0.75	1.54	2.34	16w4d	8.36	10.70	13.04
8w1d	0.80	1.62	2.44	16w6d	8.56	10.95	13.34
8w3d	0.91	1.78	2.65	17w2d	8.83	11.30	13.77
8w5d	1.03	1.96	2.88	17w4d	8.99	11.51	14.04
9w0d	1.17	2.15	3.12	17w6d	9.15	11.72	14.29
9w2d	1.33	2.36	3.39	18w2d	9.35	12.00	14.65
9w4d	1.51	2.59	3.66	18w4d	9.48	12.19	14.89
9w6d	1.70	2.83	3.96	18w6d	9.62	12.37	15.12
10w2d	2.03	3.24	4.44	19w1d	9.75	12.55	15.36
10w4d	2.27	3.53	4.79	19w3d	9.89	12.74	15.60
10w6d	2.52	3.83	5.14	19w5d	10.03	12.94	15.85
11w2d	2.93	4.32	5.71	20w0d	10.20	13.16	16.12
11w4d	3.22	4.66	6.13	20w1d	10.29	13.28	16.26
11w6d	3.53	5.02	6.51	20w2d	10.40	13.40	16.41

1-2-54 Crown-Rump Length (CRL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

GA (weeks)	CRL (cm)		
	5%	50%	95%
7w0d	0.57	1.01	1.72
7w2d	0.60	1.05	1.64
7w4d	0.65	1.13	1.66
7w6d	0.72	1.25	1.75
8w1d	0.81	1.40	1.91
8w3d	0.91	1.58	2.13
8w5d	1.03	1.78	2.40
9w0d	1.17	2.00	2.70
9w2d	1.33	2.25	3.03
9w4d	1.51	2.50	3.37
9w6d	1.71	2.76	3.73
10w1d	1.92	3.03	4.07
10w3d	2.15	3.31	4.41
10w5d	2.41	3.58	4.71
11w0d	2.67	3.84	4.98
11w2d	2.96	4.09	5.21
11w4d	3.27	4.33	5.38

1-2-55 Crown-Rump Length (CRL) McLENNAN

Reference: Construction of modern Australian first trimester ultrasound dating and growth charts Journal of Medical Imaging and Radiation Oncology (2008) 52, 471–479

Input Unit: d (days)
Output Unit: mm
Min Range: 35d (days)
Max Range: 97d (days)

GA	CRL (mm)			GA	CRL (mm)		
(d)	5%	50%	90%	(d)	5%	50%	90%
35	0.9	2.0	3.2	67	25.6	29.3	32.9
36	1.1	2.3	3.5	68	26.9	30.7	34.4
37	1.3	2.6	3.8	69	28.2	32.1	35.9
38	1.6	2.9	4.2	70	29.5	33.5	37.4
39	1.9	3.3	4.7	71	30.9	34.9	39.0
40	2.3	3.7	5.2	72	32.2	36.4	40.6
41	2.7	4.2	5.7	73	33.6	37.9	42.2
42	3.2	4.8	6.3	74	35.0	39.4	43.8
43	3.7	5.3	6.9	75	36.4	41.0	45.5
44	4.2	5.9	7.6	76	37.9	42.5	47.2
45	4.8	6.6	8.3	77	39.4	44.1	48.9
46	5.4	7.2	9.1	78	40.9	45.7	50.6
47	6.1	8.0	9.9	79	42.4	47.4	52.3
48	6.7	8.7	10.7	80	43.9	49.0	54.1
49	7.5	9.5	11.6	81	45.5	50.7	55.9
50	8.2	10.3	12.5	82	47.0	52.4	57.8
51	9.0	11.2	13.4	83	48.6	54.1	59.6
52	9.8	12.1	14.4	84	50.2	55.9	61.5
53	10.7	13.0	15.4	85	51.9	57.6	63.4
54	11.6	14.0	16.4	86	53.5	59.4	65.3
55	12.5	15.0	17.5	87	55.2	61.2	67.2
56	13.4	16.0	18.6	88	56.9	63.0	69.2
57	14.4	17.1	19.8	89	58.6	64.9	71.1
58	15.4	18.2	21.0	90	60.3	66.7	73.1
59	16.4	19.3	22.2	91	62.1	68.6	75.2
60	17.5	20.5	23.4	92	63.8	70.5	77.2
61	18.6	21.6	24.7	93	65.6	72.4	79.3
62	19.7	22.8	26.0	94	67.4	74.4	81.4
63	20.8	24.1	27.3	95	69.2	76.3	83.5
64	22.0	25.3	28.7	96	71.0	78.3	85.6
65	23.2	26.6	30.1	97	72.9	80.3	87.7
66	24.4	28.0	31.5				

1-2-56 Crown-Rump Length (CRL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA (weeks)	CRL (cm)		GA (weeks)	CRL (cm)	
	Mean	±1.5SD		Mean	±1.5SD
7w0d	0.87	0.24	10w0d	3.00	0.72
7w1d	0.91	0.26	10w1d	3.15	0.74
7w2d	0.96	0.29	10w2d	3.31	0.77
7w3d	1.02	0.30	10w3d	3.47	0.78
7w4d	1.08	0.33	10w4d	3.63	0.81
7w5d	1.15	0.35	10w5d	3.79	0.83
7w6d	1.22	0.38	10w6d	3.95	0.86
8w0d	1.30	0.39	11w0d	4.12	0.87
8w1d	1.39	0.42	11w1d	4.28	0.90
8w2d	1.49	0.44	11w2d	4.45	0.92
8w3d	1.59	0.47	11w3d	4.62	0.95
8w4d	1.69	0.48	11w4d	4.79	0.96
8w5d	1.80	0.51	11w5d	4.96	0.99
8w6d	1.92	0.53	11w6d	5.13	1.01
9w0d	2.04	0.56	12w0d	5.30	1.04
9w1d	2.16	0.57	12w1d	5.48	1.05
9w2d	2.29	0.60	12w2d	5.65	1.08
9w3d	2.43	0.62	12w3d	5.82	1.10
9w4d	2.57	0.65	12w4d	5.99	1.13
9w5d	2.71	0.68	12w5d	6.16	1.14
9w6d	2.85	0.69	12w6d	6.32	1.17

1-2-57 Crown-Rump Length (CRL) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	CRL (mm)	GA (d)	CRL (mm)
44	7.0	72	35.0
45	7.5	73	36.5
46	8.0	74	38.0
47	8.5	75	39.5
48	9.0	76	41.0
49	9.5	77	42.5
50	10.0	78	44.0
51	11.0	79	45.5
52	12.0	80	47.0
53	13.0	81	48.0
54	14.0	82	49.0
55	15.0	83	50.5
56	16.0	84	52.0
57	17.0	85	54.0
58	18.0	86	56.0
59	19.0	87	58.0
60	20.0	88	60.0
61	21.0	89	62.0
62	22.0	90	64.0
63	23.0	91	66.0
64	24.0	92	68.0
65	25.0	93	70.0
66	27.0	94	72.0
67	28.0	95	74.0
68	29.0	96	76.0
69	30.5	97	78.0
70	32.0	98	80.0
71	33.5	99	83.0

1-2-58 Crown-Rump Length (CRL) ROBINSON

Reference: Robinson H.P., Fleming J.E.E.,
"A critical evaluation of Sonar "Crown-Rump Length" measurements"
British Journal of Obstetrics and Gynecology; Volume 82:702-710, September 1975

GA (w+d)	CRL (cm)		GA (w+d)	CRL (cm)	
	Mean	±2SD		Mean	±2SD
6w2d	0.67	0.29	10w2d	3.55	0.69
6w3d	0.74	0.31	10w3d	3.69	0.70
6w4d	0.80	0.32	10w4d	3.84	0.72
6w5d	0.87	0.34	10w5d	3.99	0.73
6w6d	0.95	0.35	10w6d	4.14	0.74
7w0d	1.02	0.37	11w0d	4.30	0.76
7w1d	1.10	0.38	11w1d	4.46	0.77
7w2d	1.18	0.39	11w2d	4.62	0.79
7w3d	1.26	0.41	11w3d	4.78	0.80
7w4d	1.35	0.42	11w4d	4.95	0.81
7w5d	1.44	0.44	11w5d	5.12	0.83
7w6d	1.53	0.45	11w6d	5.29	0.84
8w0d	1.63	0.46	12w0d	5.47	0.86
8w1d	1.73	0.48	12w1d	5.65	0.87
8w2d	1.83	0.49	12w2d	5.83	0.88
8w3d	1.93	0.51	12w3d	6.01	0.90
8w4d	2.04	0.52	12w4d	6.20	0.91
8w5d	2.15	0.53	12w5d	6.39	0.93
8w6d	2.26	0.55	12w6d	6.59	0.94
9w0d	2.38	0.56	13w0d	6.78	0.95
9w1d	2.50	0.58	13w1d	6.98	0.97
9w2d	2.62	0.59	13w2d	7.18	0.98
9w3d	2.74	0.60	13w3d	7.39	1.00
9w4d	2.87	0.62	13w4d	7.60	1.01
9w5d	3.00	0.63	13w5d	7.81	1.02
9w6d	3.13	0.65	13w6d	8.02	1.04
10w0d	3.27	0.66	14w0d	8.24	1.05
10w1d	3.40	0.67			

1-2-59 Crown-Rump Length (CRL) SHINOZUKA

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA (w+d)	CRL (cm)			GA (w+d)	CRL (cm)		
	-1.64SD	Mean	+1.64SD		-1.64SD	Mean	+1.64SD
7w0d	0.51	0.79	1.07	10w1d	2.09	2.93	3.76
7w1d	0.55	0.86	1.17	10w2d	2.19	3.05	3.91
7w2d	0.60	0.93	1.27	10w3d	2.29	3.18	4.06
7w3d	0.65	1.01	1.37	10w4d	2.40	3.31	4.22
7w4d	0.71	1.09	1.47	10w5d	2.51	3.44	4.38
7w5d	0.76	1.17	1.58	10w6d	2.62	3.58	4.54
7w6d	0.82	1.25	1.69	11w0d	2.73	3.71	4.70
8w0d	0.88	1.34	1.80	11w1d	2.84	3.85	4.86
8w1d	0.95	1.43	1.91	11w2d	2.96	4.00	5.03
8w2d	1.01	1.52	2.03	11w3d	3.08	4.14	5.20
8w3d	1.08	1.61	2.15	11w4d	3.20	4.29	5.37
8w4d	1.15	1.71	2.27	11w5d	3.33	4.44	5.55
8w5d	1.22	1.81	2.39	11w6d	3.45	4.59	5.73
8w6d	1.30	1.91	2.52	12w0d	3.58	4.74	5.91
9w0d	1.38	2.01	2.65	12w1d	3.72	4.90	6.09
9w1d	1.46	2.12	2.78	12w2d	3.85	5.06	6.27
9w2d	1.54	2.23	2.91	12w3d	3.99	5.22	6.46
9w3d	1.63	2.34	3.05	12w4d	4.13	5.39	6.65
9w4d	1.72	2.45	3.18	12w5d	4.27	5.55	6.84
9w5d	1.81	2.57	3.32	12w6d	4.41	5.72	7.03
9w6d	1.90	2.68	3.47	13w0d	4.56	5.89	7.23
10w0d	1.99	2.80	3.61				

1-2-60 Crown-Rump Length (CRL) TOKYO

NOTE: Fetal Age table as shown in Section 1-1-63 on page 1-63 is used to plot the graph!
No deviation values are calculated.

GA (days)	CRL (mm)	GA (days)	CRL (mm)
55	13	73	32
56	14	74	33
57	15	74	34
58	16	75	35
59	17	76	36
60	18	77	37
61	19	78	38
62	20	78	39
63	21	79	40
64	22	80	41
65	23	81	42
66	24	81	43
67	25	82	44
68	26	83	45
68	27	84	46
69	28	84	47
70	29	85	48
71	30	86	49
72	31	86	50

1-2-61 Ductus Venosus (DV PI) BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DVPI = -0{,}001 \bullet GA + 0{,}6625$$

Input Unit: GA in w [weeks]
Output Unit: DV PI [index]
SD: 0.14

1-2-62 Ductus Venosus (DV PLI) BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DVPLI = -0{,}006 \bullet GA + 0{,}5197$$

Input Unit: GA in w [weeks]
Output Unit: DV PLI [index]
SD: 0.1

1-2-63 Ductus Venosus (DV PVIV) BASCHAT

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

$$DVPVIV = -0{,}0006 \bullet GA + 0{,}592$$

Input Unit: GA in w [weeks]
Output Unit: DV PVIV [index]
SD: 0.12

1-2-64 Ductus Venosus (DV S/a) BASCHAT

Reference: *Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.*

$$DV_{Sa} = -0{,}0023 \bullet GA + 2{,}2073$$

Input Unit: GA in w [weeks]
Output Unit: DV S/a[index]
SD: 0,5

1-2-65 Femur Length (FL) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

Input Unit: GA [week]
Output Unit: FL mean [cm] +/- SD[cm]
Min Range: 11 weeks
Max Range: 41 weeks

GA (week)	FL (cm)		GA (week)	FL (cm)	
	mean	±2SD		mean	±2SD
11	0.80	0.20	27	5.00	0.50
12	1.00	0.25	28	5.40	0.40
13	1.10	0.25	29	5.50	0.55
14	1.50	0.30	30	5.80	0.60
15	1.70	0.35	31	5.90	0.55
16	2.20	0.40	32	6.20	0.60
17	2.50	0.40	33	6.50	0.40
18	2.80	0.50	34	6.60	0.40
19	3.00	0.50	35	6.70	0.60
20	3.20	0.60	36	6.90	0.60
21	3.40	0.60	37	7.20	0.50
22	3.70	0.50	38	7.30	0.55
23	4.30	0.50	39	7.50	0.60
24	4.50	0.40	40	7.60	0.40
25	4.80	0.50	41	7.70	0.50
26	4.90	0.50			

1-2-66 Femur Length (FL) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 12 weeks
Max Range: 41 weeks

GA (Week)	FL (mm)				
	3%	10%	50%	90%	97%
12	2.76	3.89	6.33	8.79	10.00
13	6.09	7.29	9.88	12.42	13.65
14	9.40	10.65	13.33	16.00	17.27
15	12.56	13.87	16.66	19.44	20.77
16	15.70	17.00	19.95	22.80	24.18
17	18.74	20.12	23.12	26.13	27.53
18	21.69	23.14	26.23	29.30	30.80
19	24.59	26.06	29.25	32.44	33.91
20	27.42	28.94	32.23	35.48	37.03
21	30.12	31.72	35.05	38.41	40.00
22	32.83	34.39	37.87	41.30	42.91
23	35.34	37.00	40.50	44.03	45.71
24	37.89	39.58	43.16	46.75	48.42
25	40.33	42.04	45.69	49.36	51.08
26	42.66	44.40	48.17	51.88	53.62
27	44.95	46.72	50.53	54.32	56.09
28	47.13	48.94	52.80	56.64	58.45
29	49.22	51.06	54.94	58.91	60.72
30	51.30	53.14	57.13	61.08	62.92
31	53.26	55.13	59.15	63.14	65.04
32	55.12	57.04	61.11	65.19	67.07
33	56.96	58.87	63.00	67.10	69.03
34	58.69	60.62	64.76	68.88	70.84
35	60.33	62.29	66.47	70.65	72.63
36	61.90	63.89	68.13	72.34	74.30
37	63.40	65.36	69.63	73.91	75.89
38	64.81	66.79	71.11	75.38	77.41
39	66.16	68.19	72.48	76.81	78.84
40	67.42	69.47	73.79	78.14	80.17
41	68.00	70.00	74.00	79.00	81.00

1-2-67 Femur Length (FL) CHITTY

Reference: Chitty L.S., Altman D.G., Henderson A., Campbell S. "Charts of fetal size: 4. Femur length" British Journal of Obstetrics and Gynaecology; February 1984; Vol.101; pp. 132-135

Input Unit: w [weeks]
Output Unit: mm
Min Range: 12 weeks
Max Range: 42 weeks

GA (weeks)	FL (mm)			SD
	5th centile	50th centile	95th centile	mm
12	4.7	7.7	10.7	1.8
13	7.9	10.9	13.9	1.8
14	11.0	14.1	17.2	1.9
15	14.1	17.2	20.3	1.9
16	17.0	20.3	23.6	2.0
17	19.8	23.3	26.8	2.1
18	22.8	26.3	29.8	2.1
19	25.6	29.2	32.8	2.2
20	28.5	32.1	35.7	2.2
21	31.1	34.9	38.7	2.3
22	33.8	37.6	41.4	2.3
23	36.4	40.3	44.2	2.4
24	38.8	42.9	47.0	2.5
25	41.4	45.5	49.6	2.5
26	43.7	48.0	52.3	2.6
27	46.1	50.4	54.7	2.6
28	48.3	52.7	57.1	2.7
29	50.4	55.0	59.6	2.8
30	52.5	57.1	61.7	2.8
31	54.4	59.2	64.0	2.9
32	56.4	61.2	66.0	2.9
33	58.2	63.1	68.0	3.0
34	60.0	64.9	69.8	3.0
35	61.5	66.6	71.7	3.1
36	62.9	68.2	73.5	3.2
37	64.4	69.7	75.0	3.2
38	65.7	71.1	76.5	3.3
39	67.0	72.4	77.8	3.3
40	68.0	73.6	79.2	3.4
41	68.8	74.6	80.4	3.5
42	69.8	75.6	81.4	3.5

1-2-68 Femur Length (FL) EIK-NES

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: d(days)
Output Unit: mm
Min Range: 168 days
Max Range: 301 days

GA (d)	FL (mm)		GA (d)	FL (mm)		GA (d)	FL (mm)	
	mean	±1SD		mean	±1SD		mean	±1SD
168	42.6	2.257	215	59.2	2.658	262	71.3	2.994
169	43	2.259	216	59.5	2.657	263	71.5	3.002
170	43.4	2.261	217	59.8	2.656	264	71.8	3.01
171	43.8	2.265	218	60.1	2.654	265	72	3.018
172	44.1	2.271	219	60.4	2.653	266	72.2	3.026
173	44.5	2.277	220	60.7	2.651	267	72.4	3.035
174	44.9	2.286	221	60.9	2.648	268	72.6	3.043
175	45.3	2.296	222	61.2	2.645	269	72.8	3.051
176	45.7	2.307	223	61.5	2.642	270	73	3.058
177	46	2.32	224	61.8	2.639	271	73.2	3.065
178	46.4	2.335	225	62.1	2.635	272	73.4	3.071
179	46.8	2.35	226	62.4	2.631	273	73.6	3.077
180	47.2	2.366	227	62.7	2.626	274	73.8	3.082
181	47.6	2.383	228	62.9	2.622	275	74	3.086
182	47.9	2.401	229	63.2	2.617	276	74.2	3.09
183	48.3	2.418	230	63.5	2.613	277	74.4	3.092
184	48.7	2.435	231	63.8	2.61	278	74.6	3.095
185	49	2.451	232	64	2.608	279	74.7	3.096
186	49.4	2.468	233	64.3	2.607	280	74.9	3.097
187	49.8	2.484	234	64.6	2.607	281	75.1	3.096
188	50.2	2.5	235	64.8	2.61	282	75.3	3.095
189	50.5	2.516	236	65.1	2.614	283	75.5	3.092
190	50.9	2.531	237	65.3	2.62	284	75.7	3.087
191	51.2	2.546	238	65.6	2.628	285	75.8	3.081
192	51.6	2.56	239	65.9	2.637	286	76	3.073
193	51.9	2.573	240	66.1	2.649	287	76.2	3.063
194	52.3	2.585	241	66.4	2.663	288	76.4	3.052
195	52.7	2.597	242	66.6	2.678	289	76.6	3.038
196	53	2.608	243	66.9	2.695	290	76.7	3.023
197	53.3	2.618	244	67.1	2.713	291	76.9	3.005
198	53.7	2.628	245	67.4	2.732	292	77.1	2.985
199	54	2.636	246	67.6	2.752	293	77.3	2.961
200	54.4	2.644	247	67.9	2.772	294	77.4	2.934
201	54.7	2.65	248	68.1	2.793	295	77.6	2.904
202	55	2.654	249	68.3	2.814	296	77.8	2.869
203	55.4	2.657	250	68.6	2.834	297	78	2.83

GA (d)	FL (mm)		GA (d)	FL (mm)		GA (d)	FL (mm)	
	mean	±1SD		mean	±1SD		mean	±1SD
204	55.7	2.659	251	68.8	2.854	298	78.1	2.787
205	56	2.661	252	69.1	2.873	299	78.3	2.74
206	56.3	2.661	253	69.3	2.891	300	78.5	2.689
207	56.7	2.661	254	69.5	2.908	301	78.6	2.635
208	57	2.661	255	69.8	2.923			
209	57.3	2.66	256	70	2.936			
210	57.6	2.66	257	70.2	2.948			
211	57.9	2.66	258	70.4	2.959			
212	58.2	2.659	259	70.7	2.969			
213	58.6	2.659	260	70.9	2.978			
214	58.9	2.658	261	71.1	2.986			

1-2-69 Femur Length (FL) HADLOCK

Reference: Hadlock F.P., Deter R.L.; Harrist R.B., Park S.K.
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$FL = -3{,}91 + 0{,}427 \times GA - 0{,}0034 \times GA^2$$

Input Unit: w (week)

Output Unit: cm

Min Range: 12.0 weeks

Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 0.3 cm

corresponds to: 16% … 84% (-0.3cm … +0.3cm)

GA (weeks)	FL (cm)	GA (weeks)	FL (cm)
12.0	0.70	26.5	5.00
12.5	0.90	27.0	5.10
13.0	1.10	27.5	5.20
13.5	1.20	28.0	5.40
14.0	1.40	28.5	5.50
14.5	1.60	29.0	5.60
15.0	1.70	29.5	5.70
15.5	1.90	30.0	5.80
16.0	2.00	30.5	5.90
16.5	2.20	31.0	6.00
17.0	2.40	31.5	6.10
17.5	2.50	32.0	6.20
18.0	2.70	32.5	6.30
18.5	2.80	33.0	6.40
19.0	3.00	33.5	6.50
19.5	3.10	34.0	6.60
20.0	3.30	34.5	6.70
20.5	3.40	35.0	6.80
21.0	3.50	35.5	6.90
21.5	3.70	36.0	7.00
22.0	3.80	36.5	7.10
22.5	4.00	37.0	7.20
23.0	4.10	37.5	7.30
23.5	4.20	38.0	7.40
24.0	4.40	38.5	7.40
24.5	4.50	39.0	7.50
25.0	4.60	39.5	7.60
25.5	4.70	40.0	7.70
26.0	4.90		

1-2-70 Femur Length (FL) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann)"Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.431.

GA (weeks)	FL (cm)		
	5%	50%	95%
13	1.00	1.00	1.00
14	1.20	1.20	1.20
15	1.30	1.60	2.10
16	1.50	1.80	2.30
17	1.80	2.20	2.60
18	2.10	2.50	2.90
19	2.40	2.80	3.20
20	2.70	3.10	3.50
21	2.90	3.40	3.80
22	3.20	3.60	4.10
23	3.40	3.90	4.40
24	3.70	4.10	4.70
25	3.90	4.40	4.90
26	4.20	4.70	5.20
27	4.40	4.90	5.50
28	4.60	5.10	5.70
29	4.90	5.40	5.90
30	5.10	5.60	6.20
31	5.30	5.90	6.40
32	5.50	6.10	6.60
33	5.70	6.30	6.80
34	5.90	6.50	7.00
35	6.10	6.70	7.20
36	6.30	6.90	7.40
37	6.50	7.10	7.70
38	6.70	7.30	7.90
39	6.80	7.40	8.10
40	7.00	7.50	8.40

1-2-71 Femur Length (FL) JACOT-GUILLARMOD

Reference: Jacot-Guillarmod M., Vial Y., Hohlfeld P., Courbes de Biomètrie, Lausanne CHUV 2003

Input Unit: w (week)
Output Unit: mm
Min Range: 15.0 weeks
Max Range: 41.0 weeks

GA	FL (mm)		
(weeks)	5%	50%	95%
15	14.2	18.1	20.8
16	17.1	21.0	24.0
17	20.0	23.9	27.1
18	22.8	26.7	30.2
19	25.6	29.5	33.2
20	28.3	32.3	36.1
21	31.0	35.0	39.0
22	33.6	37.7	41.8
23	36.1	40.3	44.5
24	38.6	42.9	47.1
25	41.0	45.4	49.7
26	43.3	47.8	52.1
27	45.5	50.2	54.5
28	47.7	52.5	56.8
29	49.8	54.7	59.0
30	51.8	56.9	61.2
31	53.7	58.9	63.2
32	55.6	60.8	65.1
33	57.3	62.7	67.0
34	59.0	64.4	68.8
35	60.6	66.0	70.4
36	62.1	67.5	72.0
37	63.4	68.9	73.5
38	64.7	70.1	74.8
39	65.9	71.2	76.1
40	67.0	72.2	77.3
41	68.0	73.0	78.3

1-2-72 Femur Length (FL) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$FL = -2{,}5252 + 0{,}2555 \times GA + 0{,}0027566 \times GA^2 - 7{,}3286 \times GA^3 \times 10^{-5}$$

Input Unit: weeks

Output Unit: cm

Min Range: 12.0 weeks

Max Range: 40.0 weeks

GA (weeks)	FL (cm)		
	5%	50%	95%
12	0.40	0.80	1.30
13	0.60	1.10	1.60
14	0.90	1.40	1.80
15	1.20	1.70	2.10
16	1.50	2.00	2.40
17	1.80	2.30	2.70
18	2.10	2.50	3.00
19	2.40	2.80	3.30
20	2.60	3.10	3.60
21	2.90	3.40	3.80
22	3.20	3.60	4.10
23	3.50	3.90	4.40
24	3.70	4.20	4.60
25	4.00	4.40	4.90
26	4.20	4.70	5.10
27	4.50	4.90	5.40
28	4.70	5.20	5.60
29	5.00	5.40	5.90
30	5.20	5.60	6.10
31	5.40	5.90	6.30
32	5.60	6.10	6.50
33	5.80	6.30	6.70
34	6.00	6.50	6.90
35	6.20	6.70	7.10
36	6.40	6.80	7.30
37	6.50	7.00	7.40
38	6.70	7.10	7.60
39	6.80	7.30	7.70
40	7.00	7.40	7.90

1-2-73 Femur Length (FL) JOHNSEN

Reference: JJohnsen SL, Wilsgaard T, Rasmussen S, Soliien R, Kiserud T
Longitudinal reference charts for fetal head, abdomen and femur
European Journal of Obstetrics & Gynecology and Reproductive Biology 127 (2006) 172–185

Input Unit: w (weeks)
Output Unit: mm
Min Range: 10 weeks
Max Range: 40+6 weeks + days

GA (weeks)	FL (mm)		
	10%	50%	90%
10	1	2	3
11	2	4	5
12	4	6	8
13	7	8	11
14	9	12	14
15	12	15	18
16	15	18	22
17	18	21	25
18	22	25	28
19	25	28	32
20	28	31	35
21	31	34	38
22	34	37	41
23	36	40	43
24	39	42	46
25	42	45	48
26	44	47	51
27	46	49	53
28	48	52	55
29	50	54	57
30	52	56	60
31	54	58	62
32	56	60	64
33	58	62	65
34	60	63	67
35	61	65	69
36	63	67	71
37	64	69	73
38	66	70	75
39	67	72	77
40	69	74	79
40+6	71	75	80

1-2-74 Femur Length (FL) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee Ultrasound Fetal measurement standardization & Japanese standard proposals J Med Ultrasonics Vol. 28 No.5 (2001)

Age (weeks)	FL (cm)		
	-2SD	mean	+2SD
16	1.49	2.01	2.54
17	1.74	2.27	2.80
18	1.98	2.53	3.07
19	2.23	2.78	3.33
20	2.48	3.04	3.59
21	2.73	3.29	3.85
22	2.97	3.54	4.11
23	3.21	3.79	4.36
24	3.45	4.03	4.61
25	3.68	4.27	4.86
26	3.91	4.50	5.10
27	4.13	4.73	5.33
28	4.35	4.96	5.56
29	4.56	5.17	5.79
30	4.76	5.38	6.00
31	4.95	5.58	6.21
32	5.14	5.78	6.41
33	5.32	5.96	6.61
34	5.49	6.14	6.79
35	5.65	6.30	6.96
36	5.80	6.46	7.12
37	5.93	6.60	7.27
38	6.06	6.74	7.41
39	6.17	6.86	7.54
40	6.27	6.96	7.65
41	6.36	7.06	7.75
42	6.43	7.14	7.84

1-2-75 Femur Length (FL) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	FL(cm)		
	5%	50%	95%
12	0.41	0.70	0.98
13	0.72	1.03	1.34
14	1.03	1.36	1.69
15	1.33	1.68	2.04
16	1.63	2.00	2.37
17	1.92	2.30	2.69
18	2.21	2.61	3.00
19	2.49	2.90	3.31
20	2.76	3.19	3.61
21	3.03	3.47	3.90
22	3.30	3.74	4.18
23	3.56	4.01	4.45
24	3.81	4.26	4.72
25	4.05	4.52	4.98
26	4.29	4.76	5.23
27	4.52	5.00	5.48
28	4.75	5.23	5.71
29	4.97	5.45	5.94
30	5.18	5.67	6.16
31	5.39	5.88	6.38
32	5.59	6.09	6.58
33	5.78	6.28	6.79
34	5.96	6.47	6.98
35	6.14	6.65	7.16
36	6.31	6.83	7.34
37	6.48	7.00	7.51
38	6.64	7.16	7.68
39	6.79	7.31	7.84
40	6.93	7.46	7.99
41	7.07	7.60	8.13
42	7.20	7.73	8.26

1-2-76 Femur Length (FL) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days

Output Unit: mm

Min Range: 12 weeks 0 days

Max Range: 42 weeks 0 days

GA	FL (mm)			GA	FL(mm)			GA	FL (mm)			GA	FL (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	5.0	7.4	10.4	20w0d	28.9	31.8	35.2	28w0d	48.9	52.8	56.9	36w0d	63.2	68.7	72.3
12w1d	5.5	7.9	10.8	20w1d	29.3	32.2	35.6	28w1d	49.2	53.1	57.2	36w1d	63.4	68.9	72.5
12w2d	5.9	8.4	11.3	20w2d	29.7	32.6	36.0	28w2d	49.5	53.4	57.5	36w2d	63.6	69.1	72.8
12w3d	6.4	8.8	11.7	20w3d	30.1	33.0	36.4	28w3d	49.7	53.7	57.8	36w3d	63.8	69.4	73.0
12w4d	6.8	9.3	12.1	20w4d	30.4	33.4	36.8	28w4d	50.0	54.0	58.1	36w4d	64.0	69.6	73.3
12w5d	7.3	9.7	12.6	20w5d	30.8	33.8	37.2	28w5d	50.3	54.3	58.3	36w5d	64.2	69.8	73.5
12w6d	7.7	10.2	13.1	20w6d	31.2	34.2	37.7	28w6d	50.6	54.6	58.6	36w6d	64.4	70.0	73.8
13w0d	8.1	10.6	13.5	21w0d	31.6	34.6	38.1	29w0d	50.8	54.9	58.9	37w0d	64.6	70.3	74.0
13w1d	8.6	11.1	13.9	21w1d	32.0	35.0	38.5	29w1d	51.1	55.2	59.2	37w1d	64.8	70.5	74.2
13w2d	9.0	11.5	14.4	21w2d	32.4	35.4	38.9	29w2d	51.4	55.5	59.5	37w2d	64.9	70.7	74.4
13w3d	9.5	12.0	14.9	21w3d	32.8	35.8	39.3	29w3d	51.6	55.8	59.8	37w3d	65.1	70.9	74.7
13w4d	9.9	12.4	15.3	21w4d	33.2	36.2	39.7	29w4d	51.9	56.1	60.0	37w4d	65.3	71.1	74.9
13w5d	10.4	12.9	15.8	21w5d	33.6	36.6	40.1	29w5d	52.2	56.4	60.3	37w5d	65.5	71.3	75.1
13w6d	10.8	13.3	16.2	21w6d	34.0	37.0	40.5	29w6d	52.4	56.7	60.6	37w6d	65.6	71.5	75.3
14w0d	11.3	13.8	16.7	22w0d	34.4	37.4	40.9	30w0d	52.7	57.0	60.9	38w0d	65.8	71.7	75.5
14w1d	11.7	14.3	17.1	22w1d	34.8	37.8	41.3	30w1d	53.0	57.3	61.1	38w1d	66.0	71.9	75.7
14w2d	12.1	14.7	17.6	22w2d	35.2	38.1	41.7	30w2d	53.2	57.6	61.4	38w2d	66.1	72.1	75.9
14w3d	12.6	15.2	18.0	22w3d	35.6	38.5	42.1	30w3d	53.5	57.9	61.7	38w3d	66.3	72.2	76.1
14w4d	13.0	15.6	18.5	22w4d	36.0	38.9	42.5	30w4d	53.8	58.2	61.9	38w4d	66.5	72.4	76.3
14w5d	13.5	16.1	19.0	22w5d	36.4	39.3	42.9	30w5d	54.0	58.4	62.2	38w5d	66.6	72.6	76.5
14w6d	13.9	16.5	19.4	22w6d	36.8	39.7	43.3	30w6d	54.3	58.7	62.5	38w6d	66.8	72.8	76.7
15w0d	14.4	17.0	19.9	23w0d	37.2	40.1	43.7	31w0d	54.6	59.0	62.8	39w0d	67.0	73.0	76.9
15w1d	14.8	17.5	20.3	23w1d	37.5	40.5	44.1	31w1d	54.8	59.3	63.0	39w1d	67.1	73.2	77.1
15w2d	15.3	17.9	20.8	23w2d	37.9	40.9	44.5	31w2d	55.1	59.6	63.3	39w2d	67.3	73.3	77.3
15w3d	15.7	18.4	21.2	23w3d	38.3	41.3	44.9	31w3d	55.4	59.9	63.6	39w3d	67.5	73.5	77.5
15w4d	16.2	18.8	21.7	23w4d	38.7	41.7	45.3	31w4d	55.7	60.2	63.9	39w4d	67.6	73.7	77.7
15w5d	16.6	19.3	22.1	23w5d	39.1	42.1	45.7	31w5d	55.9	60.5	64.2	39w5d	67.8	73.9	77.8
15w6d	17.0	19.7	22.6	23w6d	39.4	42.5	46.1	31w6d	56.2	60.8	64.4	39w6d	68.0	74.0	78.0
16w0d	17.5	20.1	23.0	24w0d	39.8	42.9	46.6	32w0d	56.5	61.1	64.7	40w0d	68.1	74.2	78.2
16w1d	17.9	20.6	23.5	24w1d	40.2	43.2	47.0	32w1d	56.7	61.3	65.0	40w1d	68.3	74.4	78.3
16w2d	18.4	21.0	23.9	24w2d	40.6	43.6	47.4	32w2d	57.0	61.6	65.3	40w2d	68.5	74.6	78.5
16w3d	18.8	21.5	24.4	24w3d	40.9	44.0	47.8	32w3d	57.2	61.9	65.6	40w3d	68.7	74.7	78.7
16w4d	19.2	21.9	24.8	24w4d	41.3	44.4	48.2	32w4d	57.5	62.2	65.8	40w4d	68.8	74.9	78.9
16w5d	19.6	22.3	25.3	24w5d	41.6	44.8	48.6	32w5d	57.8	62.5	66.1	40w5d	69.0	75.1	79.0
16w6d	20.1	22.8	25.7	24w6d	42.0	45.1	49.0	32w6d	58.0	62.8	66.4	40w6d	69.2	75.2	79.2
17w0d	20.5	23.2	26.1	25w0d	42.4	45.5	49.4	33w0d	58.3	63.1	66.7	41w0d	69.4	75.4	79.3
17w1d	20.9	23.6	26.6	25w1d	42.7	45.9	49.7	33w1d	58.5	63.4	67.0	41w1d	69.5	75.6	79.5
17w2d	21.3	24.0	27.0	25w2d	43.0	46.3	50.1	33w2d	58.8	63.6	67.2	41w2d	69.7	75.7	79.7

GA	FL (mm)			GA	FL(mm)			GA	FL (mm)			GA	FL (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
17w3d	21.7	24.5	27.4	25w3d	43.4	46.6	50.5	33w3d	59.0	63.9	67.5	41w3d	69.9	75.9	79.8
17w4d	22.1	24.9	27.9	25w4d	43.7	47.0	50.9	33w4d	59.3	64.2	67.8	41w4d	70.0	76.1	80.0
17w5d	22.5	25.3	28.3	25w5d	44.1	47.4	51.3	33w5d	59.5	64.5	68.1	41w5d	70.2	76.2	80.1
17w6d	22.9	25.7	28.7	25w6d	44.4	47.7	51.7	33w6d	59.8	64.8	68.4	41w6d	70.4	76.4	80.3
18w0d	23.3	26.1	29.2	26w0d	44.7	48.1	52.1	34w0d	60.0	65.0	68.6	42w0d	70.6	76.6	80.4
18w1d	23.7	26.5	29.6	26w1d	45.0	48.4	52.4	34w1d	60.2	65.3	68.9				
18w2d	24.1	26.9	30.0	26w2d	45.4	48.8	52.8	34w2d	60.5	65.6	69.2				
18w3d	24.5	27.3	30.5	26w3d	45.7	49.1	53.2	34w3d	60.7	65.8	69.4				
18w4d	24.9	27.7	30.9	26w4d	46.0	49.5	53.5	34w4d	61.0	66.1	69.7				
18w5d	25.3	28.2	31.3	26w5d	46.3	49.8	53.9	34w5d	61.2	66.4	70.0				
18w6d	25.7	28.6	31.8	26w6d	46.6	50.2	54.2	34w6d	61.4	66.6	70.2				
19w0d	26.1	29.0	32.2	27w0d	46.9	50.5	54.6	35w0d	61.7	66.9	70.5				
19w1d	26.5	29.4	32.6	27w1d	47.2	50.8	54.9	35w1d	61.9	67.2	70.8				
19w2d	26.9	29.8	33.0	27w2d	47.5	51.2	55.2	35w2d	62.1	67.4	71.0				
19w3d	27.3	30.2	33.5	27w3d	47.8	51.5	55.6	35w3d	62.3	67.7	71.3				
19w4d	27.7	30.6	33.9	27w4d	48.1	51.8	55.9	35w4d	62.6	67.9	71.5				
19w5d	28.1	31.0	34.3	27w5d	48.4	52.1	56.2	35w5d	62.8	68.2	71.8				
19w6d	28.5	31.4	34.7	27w6d	48.6	52.5	56.5	35w6d	63.0	68.4	72.0				

1-2-77 Femur Length (FL) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	FL (cm)			GA (weeks)	FL (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.60	0.90	1.20	27.5	4.80	5.20	5.70
13.0	0.80	1.10	1.40	28.0	4.90	5.30	5.80
13.5	1.00	1.30	1.60	28.5	5.00	5.50	5.90
14.0	1.10	1.50	1.80	29.0	5.10	5.60	6.00
14.5	1.30	1.60	2.00	29.5	5.20	5.70	6.10
15.0	1.50	1.80	2.10	30.0	5.30	5.80	6.20
15.5	1.60	2.00	2.30	30.5	5.40	5.90	6.30
16.0	1.80	2.10	2.50	31.0	5.50	6.00	6.40
16.5	1.90	2.30	2.60	31.5	5.60	6.10	6.60
17.0	2.10	2.40	2.80	32.0	5.70	6.20	6.70
17.5	2.20	2.60	2.90	32.5	5.80	6.30	6.80
18.0	2.40	2.70	3.10	33.0	5.90	6.40	6.90
18.5	2.50	2.90	3.20	33.5	6.00	6.50	7.00
19.0	2.70	3.00	3.40	34.0	6.10	6.60	7.10
19.5	2.80	3.20	3.50	34.5	6.20	6.70	7.20
20.0	2.90	3.30	3.70	35.0	6.30	6.80	7.30
20.5	3.10	3.50	3.80	35.5	6.40	6.90	7.40
21.0	3.20	3.60	4.00	36.0	6.50	7.00	7.40
21.5	3.30	3.70	4.10	36.5	6.60	7.00	7.50
22.0	3.50	3.90	4.20	37.0	6.60	7.10	7.60
22.5	3.60	4.00	4.40	37.5	6.70	7.20	7.70
23.0	3.70	4.10	4.50	38.0	6.80	7.30	7.80
23.5	3.90	4.30	4.60	38.5	6.90	7.40	7.90
24.0	4.00	4.40	4.80	39.0	6.90	7.40	7.90
24.5	4.10	4.50	4.90	39.5	7.00	7.50	8.00
25.0	4.20	4.60	5.00	40.0	7.10	7.60	8.10
25.5	4.30	4.80	5.20	40.5	7.10	7.60	8.10
26.0	4.50	4.90	5.30	41.0	7.20	7.70	8.20
26.5	4.60	5.00	5.40	41.5	7.20	7.70	8.30
27.0	4.70	5.10	5.50				

1-2-78 Femur Length (FL) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	FL (cm)		
	5thcentile	Median	95thcentile
14	1.40	1.70	1.90
15	1.70	1.90	2.20
16	1.90	2.20	2.50
17	2.10	2.40	2.80
18	2.40	2.70	3.00
19	2.60	3.00	3.30
20	2.90	3.20	3.60
21	3.20	3.50	3.90
22	3.40	3.80	4.20
23	3.70	4.10	4.50
24	3.90	4.30	4.70
25	4.20	4.60	5.00
26	4.40	4.80	5.30
27	4.70	5.10	5.50
28	4.90	5.30	5.80
29	5.10	5.60	6.00
30	5.30	5.80	6.30
31	5.50	6.00	6.50
32	5.70	6.20	6.70
33	5.90	6.40	6.90
34	6.10	6.60	7.10
35	6.30	6.80	7.30
36	6.40	6.90	7.40
37	6.60	7.10	7.60
38	6.70	7.20	7.70
39	6.80	7.30	7.80

1-2-79 Femur Length (FL) O'BRIEN

Reference: O´Brien G.D., Queenan J.T. "Growth of the ultrasound fetal femur length during normal pregnancy. Part I." American Journal in Obstetrics and Gynecology; December 1981; 141(7); pp. 833-887

GA (Week)	FL(mm)		
	-2SD	Mean	+2SD
14	14.1	16.6	19.1
15	17.6	19.9	22.2
16	19.0	22.0	25.0
17	22.3	25.2	28.1
18	26.5	29.6	32.7
19	29.3	32.4	35.5
20	32.3	34.8	37.3
21	33.4	37.5	41.6
22	37.0	40.9	44.8
23	39.9	43.5	47.1
24	42.9	46.4	49.9
25	43.4	48.0	52.6
26	46.1	51.1	56.1
27	49.8	53.0	56.2
28	50.3	54.4	58.5
29	53.0	57.3	61.6
30	54.9	58.7	62.5
31	57.0	61.5	66.0
32	58.4	62.8	67.0
33	60.3	64.9	69.5
34	61.3	65.7	70.1
35	62.9	67.7	72.5
36	65.1	69.5	74.1
37	66.5	70.8	75.1
38	66.2	71.8	77.4
39	69.1	74.2	79.3
40	69.8	75.4	81.0

1-2-80 Femur Length (FL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA (w+d)	FL (cm)		GA (w+d)	FL (cm)		GA (w+d)	FL (cm)		GA (w+d)	FL (cm)	
	mean	±1.5SD		mean	±1.5SD		mean	±1.5SD		mean	±1.5SD
13w0d	0.94	0.32	19w6d	2.99	0.36	26w5d	4.72	0.41	33w4d	6.11	0.44
13w1d	0.98	0.32	20w0d	3.03	0.36	26w6d	4.75	0.41	33w5d	6.14	0.44
13w2d	1.03	0.32	20w1d	3.07	0.36	27w0d	4.78	0.41	33w6d	6.16	0.44
13w3d	1.07	0.32	20w2d	3.11	0.36	27w1d	4.82	0.41	34w0d	6.19	0.44
13w4d	1.12	0.32	20w3d	3.15	0.36	27w2d	4.85	0.41	34w1d	6.21	0.44
13w5d	1.17	0.32	20w4d	3.19	0.36	27w3d	4.88	0.41	34w2d	6.24	0.44
13w6d	1.21	0.33	20w5d	3.23	0.36	27w4d	4.91	0.41	34w3d	6.26	0.45
14w0d	1.26	0.33	20w6d	3.27	0.36	27w5d	4.94	0.41	34w4d	6.29	0.45
14w1d	1.30	0.33	21w0d	3.30	0.36	27w6d	4.97	0.41	34w5d	6.31	0.45
14w2d	1.35	0.33	21w1d	3.34	0.36	28w0d	5.01	0.41	34w6d	6.34	0.45
14w3d	1.39	0.33	21w2d	3.38	0.36	28w1d	5.04	0.41	35w0d	6.36	0.45
14w4d	1.44	0.33	21w3d	3.42	0.36	28w2d	5.07	0.41	35w1d	6.39	0.45
14w5d	1.48	0.33	21w4d	3.46	0.38	28w3d	5.10	0.41	35w2d	6.41	0.45
14w6d	1.53	0.33	21w5d	3.49	0.38	28w4d	5.13	0.41	35w3d	6.43	0.45
15w0d	1.57	0.33	21w6d	3.53	0.38	28w5d	5.16	0.41	35w4d	6.46	0.45
15w1d	1.61	0.33	22w0d	3.57	0.38	28w6d	5.19	0.41	35w5d	6.48	0.45
15w2d	1.66	0.33	22w1d	3.61	0.38	29w0d	5.22	0.41	35w6d	6.50	0.45
15w3d	1.70	0.33	22w2d	3.64	0.38	29w1d	5.25	0.41	36w0d	6.53	0.45
15w4d	1.75	0.33	22w3d	3.68	0.38	29w2d	5.28	0.42	36w1d	6.55	0.45
15w5d	1.79	0.33	22w4d	3.72	0.38	29w3d	5.31	0.42	36w2d	6.57	0.45
15w6d	1.83	0.33	22w5d	3.75	0.38	29w4d	5.34	0.42	36w3d	6.60	0.45
16w0d	1.88	0.33	22w6d	3.79	0.38	29w5d	5.37	0.42	36w4d	6.62	0.45
16w1d	1.92	0.33	23w0d	3.83	0.38	29w6d	5.40	0.42	36w5d	6.64	0.45
16w2d	1.96	0.33	23w1d	3.86	0.38	30w0d	5.43	0.42	36w6d	6.66	0.45
16w3d	2.01	0.35	23w2d	3.90	0.38	30w1d	5.46	0.42	37w0d	6.69	0.47
16w4d	2.05	0.35	23w3d	3.93	0.38	30w2d	5.49	0.42	37w1d	6.71	0.47
16w5d	2.09	0.35	23w4d	3.97	0.38	30w3d	5.52	0.42	37w2d	6.73	0.47
16w6d	2.13	0.35	23w5d	4.01	0.38	30w4d	5.54	0.42	37w3d	6.75	0.47
17w0d	2.18	0.35	23w6d	4.04	0.38	30w5d	5.57	0.42	37w4d	6.77	0.47
17w1d	2.22	0.35	24w0d	4.08	0.38	30w6d	5.60	0.42	37w5d	6.79	0.47
17w2d	2.26	0.35	24w1d	4.11	0.39	31w0d	5.63	0.42	37w6d	6.82	0.47
17w3d	2.30	0.35	24w2d	4.15	0.39	31w1d	5.66	0.42	38w0d	6.84	0.47
17w4d	2.34	0.35	24w3d	4.18	0.39	31w2d	5.69	0.42	38w1d	6.86	0.47
17w5d	2.39	0.35	24w4d	4.22	0.39	31w3d	5.71	0.42	38w2d	6.88	0.47
17w6d	2.43	0.35	24w5d	4.25	0.39	31w4d	5.74	0.42	38w3d	6.90	0.47
18w0d	2.47	0.35	24w6d	4.28	0.39	31w5d	5.77	0.42	38w4d	6.92	0.47
18w1d	2.51	0.35	25w0d	4.32	0.39	31w6d	5.80	0.44	38w5d	6.94	0.47
18w2d	2.55	0.35	25w1d	4.35	0.39	32w0d	5.82	0.44	38w6d	6.96	0.47
18w3d	2.59	0.35	25w2d	4.39	0.39	32w1d	5.85	0.44	39w0d	6.98	0.47
18w4d	2.63	0.35	25w3d	4.42	0.39	32w2d	5.88	0.44	39w1d	7.00	0.47
18w5d	2.67	0.35	25w4d	4.45	0.39	32w3d	5.90	0.44	39w2d	7.02	0.47
18w6d	2.71	0.35	25w5d	4.49	0.39	32w4d	5.93	0.44	39w3d	7.04	0.47
19w0d	2.75	0.36	25w6d	4.52	0.39	32w5d	5.96	0.44	39w4d	7.06	0.48
19w1d	2.79	0.36	26w0d	4.56	0.39	32w6d	5.98	0.44	39w5d	7.08	0.48
19w2d	2.83	0.36	26w1d	4.59	0.39	33w0d	6.01	0.44	39w6d	7.10	0.48
19w3d	2.87	0.36	26w2d	4.62	0.39	33w1d	6.04	0.44	40w0d	7.12	0.48
19w4d	2.91	0.36	26w3d	4.65	0.39	33w2d	6.06	0.44			
19w5d	2.95	0.36	26w4d	4.69	0.39	33w3d	6.09	0.44			

1-2-81 Femur Length (FL) PERSSON

Reference: Ultraljud, Chapter 26, Table 26.1
Author: Britt-Marie Weldner, Publisher: Studentlitteratur 1998

GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)	GA (d)	FL (mm)
85	8.0	123	25.2	161	40.4	199	55.3	237	66.8	275	76.3
86	8.5	124	25.6	162	40.8	200	55.6	238	67.0	276	76.5
87	9.0	125	26.0	163	41.2	201	56.0	239	67.3	277	76.8
88	9.5	126	26.4	164	41.6	202	56.3	240	67.5	278	77.0
89	10.0	127	26.8	165	42.0	203	56.7	241	67.8	279	77.3
90	10.5	128	27.2	166	42.4	204	57.0	242	68.0	280	77.5
91	11.1	129	27.6	167	42.8	205	57.3	243	68.3	281	77.8
92	11.7	130	28.0	168	43.2	206	57.7	244	68.5	270	75.0
93	12.2	131	28.4	169	43.6	207	58.0	245	68.8	271	75.3
94	12.8	132	28.8	170	44.0	208	58.3	246	69.0	272	75.5
95	13.3	133	29.2	171	44.4	209	58.7	247	69.3	273	75.8
96	13.8	134	29.6	172	44.8	210	59.0	248	69.5	274	76.0
97	14.2	135	30.0	173	45.2	211	59.3	249	69.8	275	76.3
98	14.6	136	30.4	174	45.6	212	59.7	250	70.0	276	76.5
99	15.0	137	30.8	175	46.0	213	60.0	251	70.3	277	76.8
100	15.4	138	31.2	176	46.4	214	60.3	252	70.5	278	77.0
101	15.8	139	31.6	177	46.8	215	60.7	253	70.8	279	77.3
102	16.2	140	32.0	178	47.2	216	61.0	254	71.0	280	77.5
103	16.6	141	32.4	179	47.6	217	61.3	255	71.3	281	77.8
104	17.0	142	32.8	180	48.0	218	61.7	256	71.5	282	78.0
105	17.4	143	33.2	181	48.4	219	62.0	257	71.8	283	78.3
106	17.8	144	33.6	182	48.8	220	62.3	258	72.0	284	78.5
107	18.2	145	34.0	183	49.2	221	62.7	259	72.3	285	78.8
108	18.6	146	34.4	184	49.6	222	63.0	260	72.5	286	79.0
109	19.0	147	34.8	185	50.0	223	63.3	261	72.8	287	79.3
110	19.4	148	35.2	186	50.4	224	63.5	262	73.0	288	79.5
111	19.8	149	35.6	187	50.8	225	63.8	263	73.3	289	79.8
112	20.2	150	36.0	188	51.3	226	64.0	264	73.5	290	80.0
113	20.6	151	36.4	189	51.6	227	64.3	265	73.8	291	80.3
114	21.0	152	36.8	190	52.0	228	64.5	266	74.0	292	80.5
115	21.5	153	37.6	191	52.4	229	64.8	267	74.3	293	80.8
116	22.0	154	37.8	192	52.8	230	65.0	268	74.5	294	81.0
117	22.5	155	38.0	193	53.2	231	65.3	269	74.8	295	81.2
118	23.0	156	38.4	194	53.6	232	65.5	270	75.0	296	81.4
119	23.5	157	38.8	195	54.0	233	65.8	271	75.3	297	81.6
120	24.0	158	39.2	196	54.3	234	66.0	272	75.5	298	81.8
121	24.4	159	39.6	197	54.7	235	66.3	273	75.8	299	82.0
122	24.8	160	40.0	198	55.0	236	66.5	274	76.0	300	82.2

1-2-82 Femur Length (FL) SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Input Unit:	w (weeks)	Min Range:	16.0 weeks
Output Unit:	cm	Max Range:	42.0 weeks s

NOTE: Table used up to Voluson i/e BT07

Used for Graph Display

GA (weeks)	FL (cm)			GA (weeks)	FL (cm)		
	-1.64SD	mean	+1.64SD		-1.64SD	mean	+1.64SD
16	1.71	2.14	2.58	30	4.97	5.48	6.00
17	1.96	2.40	2.84	31	5.16	5.68	6.20
18	2.21	2.65	3.10	32	5.35	5.87	6.40
19	2.46	2.91	3.36	33	5.52	6.05	6.58
20	2.71	3.16	3.62	34	5.69	6.22	6.76
21	2.95	3.41	3.88	35	5.84	6.38	6.92
22	3.19	3.66	4.13	36	5.99	6.53	7.08
23	3.43	3.91	4.38	37	6.12	6.67	7.22
24	3.67	4.15	4.63	38	6.24	6.80	7.36
25	3.90	4.39	4.87	39	6.35	6.91	7.47
26	4.13	4.62	5.11	40	6.44	7.01	7.58
27	4.35	4.84	5.34	41	6.53	7.10	7.67
28	4.56	5.06	5.57	42	6.59	7.17	7.75
29	4.77	5.28	5.79				

NOTE: Table used at Voluson i/e BT09 and upwards

Used for SD Display (on system ± 1.64SD is used)

$\pm 1SD = 4{,}815 \bullet GA \bullet 10^{-3} + 2{,}1$ (see Table 1 in Reference above) GA in days, 1SD in mm
The SD values in the table below are calculated using the formula above

GA (w+d)	FL (mm)		GA (w+d)	FL (mm)	
	mean	± 1SD		mean	± 1SD
16+1	20	2.6	27+2	48	3.0
16+3	21	2.7	27+5	49	3.0
16+6	22	2.7	28+2	50	3.1
17+1	23	2.7	28+5	51	3.1
17+3	24	2.7	29+2	52	3.1
17+6	25	2.7	29+5	53	3.1
18+1	26	2.7	30+2	54	3.1
18+3	27	2.7	30+5	55	3.1
18+6	28	2.7	31+2	56	3.2
19+1	29	2.7	31+6	57	3.2

GA (w+d)	FL (mm)		GA (w+d)	FL (mm)	
	mean	± 1SD		mean	± 1SD
19+4	30	2.8	32+3	58	3.2
20+0	31	2.8	33+0	59	3.2
20+2	32	2.8	33+3	60	3.2
20+5	33	2.8	34+0	61	3.2
21+1	34	2.8	34+4	62	3.3
21+3	35	2.8	35+1	63	3.3
21+6	36	2.8	35+5	64	3.3
22+2	37	2.9	36+2	65	3.3
22+5	38	2.9	37+0	66	3.3
23+1	39	2.9	37+4	67	3.4
23+4	40	2.9	38+1	68	3.4
24+0	41	2.9	38+5	69	3.4
24+3	42	2.9	39+3	70	3.4
24+6	43	2.9			
25+3	44	3.0			
25+6	45	3.0			
26+2	46	3.0			
26+5	47	3.0			

1-2-83 Femur Length (FL) SIRIRAJ

Reference: Titapant V, Siwadune T, Boriboonhirunsarn D, Sunsaneevithayakul P, Swasdimongkol S, Sutanthavibul A. Charts of Thai fetal biometries: 3. Femur length. J Med Assoc Thai 2000; 83: 299-306

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12,0 weeks
Max Range: 41,0 weeks

GA (weeks)	FL (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	4.36	6.31	8.26
13	7.36	9.33	11.30
14	10.31	12.30	14.30
15	13.23	15.25	17.26
16	16.10	18.15	20.19
17	18.94	21.01	23.08
18	21.72	23.83	25.93
19	24.46	26.59	28.73
20	27.14	29.31	31.48
21	29.78	31.98	34.18
22	32.35	34.59	36.83
23	34.86	37.14	39.42
24	37.32	39.64	41.96
25	39.71	42.07	44.43
26	42.03	44.43	46.84
27	44.28	46.73	49.18
28	46.46	48.95	51.45
29	48.56	51.11	53.65
30	50.58	53.18	55.78
31	52.53	55.18	57.83
32	54.39	57.10	59.80
33	56.17	58.93	61.69
34	57.86	60.67	63.49
35	59.45	62.33	65.21
36	60.96	63.89	66.83
37	62.36	65.36	68.36
38	63.67	66.74	69.80
39	64.88	68.01	71.14
40	65.98	69.18	72.38
41	66.98	70.25	73.51

1-2-84 Femur Length (FL) TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

50%	$FL = 7{,}696 \times GA \times 10^{-1} - 1{,}118 \times GA^2 \times 10^{-3} - 51{,}63$
95%	$FL = 1{,}336 \times GA^2 \times 10^{-3} - 7{,}028 \times GA^4 \times 10^{-9} + 8{,}813$
5%	$FL = 4{,}376 \times GA \times 10^{-1} - 4{,}005 \times GA^2 \times 10^{-4} - 26{,}75$

Input Unit: days

Output Unit: mm

Range: 140 ...287 days (20w0d .. 41w0d)

Table values are calculated with the equations above.

GA (days)	FL (cm)			GA (days)	FL (cm)			GA (days)	FL (cm)			GA (days)	FL (cm)			GA (days)	FL (cm)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%		5%	50%	95%		5%	50%	95%
140	2.67	3.23	3.42	170	3.61	4.16	4.69	200	4.48	5.10	5.76	230	5.27	5.98	6.62	260	6.00	6.70	7.29
141	2.70	3.26	3.47	171	3.64	4.19	4.73	201	4.50	5.13	5.79	231	5.30	6.01	6.65	261	6.02	6.72	7.31
142	2.73	3.29	3.51	172	3.67	4.22	4.77	202	4.53	5.16	5.82	232	5.32	6.04	6.67	262	6.04	6.74	7.33
143	2.76	3.32	3.56	173	3.70	4.25	4.81	203	4.56	5.19	5.85	233	5.35	6.06	6.70	263	6.06	6.76	7.34
144	2.80	3.35	3.60	174	3.73	4.28	4.84	204	4.59	5.22	5.88	234	5.37	6.09	6.72	264	6.09	6.78	7.36
145	2.83	3.38	3.65	175	3.76	4.31	4.88	205	4.61	5.25	5.92	235	5.40	6.12	6.75	265	6.11	6.80	7.38
146	2.86	3.41	3.69	176	3.79	4.35	4.92	206	4.64	5.29	5.95	236	5.42	6.14	6.77	266	6.13	6.82	7.40
147	2.89	3.44	3.73	177	3.82	4.38	4.96	207	4.67	5.32	5.98	237	5.45	6.17	6.80	267	6.15	6.83	7.42
148	2.92	3.47	3.78	178	3.85	4.41	4.99	208	4.69	5.35	6.01	238	5.47	6.19	6.82	268	6.18	6.85	7.43
149	2.96	3.50	3.82	179	3.87	4.44	5.03	209	4.72	5.38	6.04	239	5.50	6.22	6.84	269	6.20	6.87	7.45
150	2.99	3.53	3.87	180	3.90	4.47	5.07	210	4.75	5.41	6.07	240	5.52	6.24	6.87	270	6.22	6.89	7.47
151	3.02	3.56	3.91	181	3.93	4.50	5.10	211	4.78	5.44	6.10	241	5.55	6.27	6.89	271	6.24	6.90	7.48
152	3.05	3.59	3.95	182	3.96	4.54	5.14	212	4.80	5.47	6.13	242	5.57	6.30	6.91	272	6.26	6.92	7.50
153	3.08	3.62	3.99	183	3.99	4.57	5.18	213	4.83	5.50	6.16	243	5.59	6.32	6.94	273	6.29	6.93	7.51
154	3.11	3.65	4.04	184	4.02	4.60	5.21	214	4.86	5.53	6.19	244	5.62	6.34	6.96	274	6.31	6.95	7.53
155	3.15	3.69	4.08	185	4.05	4.63	5.25	215	4.88	5.56	6.22	245	5.64	6.37	6.98	275	6.33	6.97	7.55
156	3.18	3.72	4.12	186	4.08	4.66	5.28	216	4.91	5.58	6.24	246	5.67	6.39	7.00	276	6.35	6.98	7.56
157	3.21	3.75	4.16	187	4.11	4.69	5.32	217	4.94	5.61	6.27	247	5.69	6.42	7.03	277	6.37	6.99	7.58
158	3.24	3.78	4.21	188	4.14	4.73	5.35	218	4.96	5.64	6.30	248	5.71	6.44	7.05	278	6.40	7.01	7.59
159	3.27	3.81	4.25	189	4.17	4.76	5.39	219	4.99	5.67	6.33	249	5.74	6.46	7.07	279	6.42	7.02	7.61
160	3.30	3.84	4.29	190	4.19	4.79	5.42	220	5.01	5.70	6.36	250	5.76	6.49	7.09	280	6.44	7.04	7.62
161	3.33	3.87	4.33	191	4.22	4.82	5.46	221	5.04	5.73	6.38	251	5.79	6.51	7.11	281	6.46	7.05	7.63
162	3.36	3.90	4.37	192	4.25	4.85	5.49	222	5.07	5.76	6.41	252	5.81	6.53	7.13	282	6.48	7.06	7.65
163	3.39	3.93	4.41	193	4.28	4.88	5.53	223	5.09	5.79	6.44	253	5.83	6.55	7.15	283	6.50	7.07	7.66
164	3.42	3.97	4.45	194	4.31	4.91	5.56	224	5.12	5.82	6.47	254	5.86	6.58	7.17	284	6.52	7.08	7.68
165	3.46	4.00	4.49	195	4.34	4.95	5.59	225	5.14	5.84	6.49	255	5.88	6.60	7.19	285	6.54	7.10	7.69
166	3.49	4.03	4.53	196	4.36	4.98	5.63	226	5.17	5.87	6.52	256	5.90	6.62	7.21	286	6.56	7.11	7.70
167	3.52	4.06	4.57	197	4.39	5.01	5.66	227	5.19	5.90	6.55	257	5.93	6.64	7.23	287	6.59	7.12	7.72
168	3.55	4.09	4.61	198	4.42	5.04	5.69	228	5.22	5.93	6.57	258	5.95	6.66	7.25				
169	3.58	4.12	4.65	199	4.45	5.07	5.72	229	5.25	5.95	6.60	259	5.97	6.68	7.27				

1-2-85 Femur Length (FL) VERBURG

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

Femur Lenght	Mean	-37.4948 + 3.7089 × GA -0.0006325 × GA^3
	SD	0.8778 + 0.0465 × GA

GA (weeks	FL (mm)			GA (weeks	FL (mm)		
	5%	50%	95%		5%	50%	95%
12	3.2	5.9	8.6	27	46.2	50.2	54.2
13	6.5	9.3	12.1	28	48.4	52.5	56.6
14	9.8	12.7	15.6	29	50.5	54.6	58.8
15	13.0	16.0	19.0	30	52.4	56.7	61.0
16	16.2	19.3	22.3	31	54.3	58.6	63.0
17	19.3	22.5	25.6	32	56.0	60.5	64.9
18	22.4	25.6	28.8	33	57.6	62.2	66.7
19	25.3	28.6	32.0	34	59.1	63.8	68.4
20	28.2	31.6	35.0	35	60.5	65.2	69.9
21	31.0	34.5	38.0	36	61.7	66.5	71.3
22	33.8	37.4	40.9	37	62.8	67.7	72.6
23	36.4	40.1	43.8	38	63.8	68.7	73.7
24	39.0	42.8	46.5	39	64.6	69.6	74.7
25	41.5	45.3	49.2	40	65.2	70.4	75.5
26	43.9	47.8	51.7				

1-2-86 Femur Length (FL) WARDA

Reference: Warda A.H.; Deter R.L.; Rossavik I.K.; Carpenter R.J.; Hadlock F.P.
"Fetal Femur Length: A Critical Reevaluation of the Relationship to Menstrual Age"
Ultrasound in Obstetrics and Gynecology Vol. 66: 69-75, 1985

$$FL = -3{,}8929 + 0{,}42062 \times GA - 0{,}0034513 \times GA^2$$

Input Unit: w (weeks)

Output Unit: cm

Min Range: 12.0 weeks

Max Range: 40.0 weeks

GA (weeks)	FL (cm)			GA (weeks)	FL (cm)		
	5%	50%	95%		5%	50%	95%
12	0.60	0.70	0.80	27	4.20	4.90	5.60
13	0.90	1.00	1.10	28	4.50	5.20	5.90
14	1.10	1.30	1.50	29	4.60	5.40	6.20
15	1.40	1.60	1.80	30	4.80	5.60	6.40
16	1.70	2.00	2.30	31	5.00	5.80	6.60
17	2.00	2.30	2.60	32	5.20	6.00	6.80
18	2.20	2.60	3.00	33	5.30	6.20	7.10
19	2.50	2.90	3.30	34	5.50	6.40	7.30
20	2.70	3.10	3.50	35	5.70	6.60	7.50
21	2.90	3.40	3.90	36	5.80	6.80	7.80
22	3.20	3.70	4.20	37	5.90	6.90	7.90
23	3.40	4.00	4.60	38	6.10	7.10	8.10
24	3.60	4.20	4.80	39	6.30	7.30	8.30
25	3.90	4.50	5.10	40	6.40	7.40	8.40
26	4.00	4.70	5.40				

1-2-87 Fetal Trunk Area (FTA) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	FTA (cm^2)		GA	FTA (cm^2)		GA	FTA (cm^2)		GA	FTA (cm^2)		GA	FTA (cm^2)	
(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD
14w0d	5.60	1.80	19w2d	16.60	3.45	24w4d	31.70	5.85	29w6d	50.20	8.70	35w1d	70.10	12.00
14w1d	5.80	1.80	19w3d	16.90	3.60	24w5d	32.20	5.85	30w0d	50.80	8.70	35w2d	70.60	12.15
14w2d	6.00	1.80	19w4d	17.30	3.60	24w6d	32.60	6.00	30w1d	51.30	8.85	35w3d	71.10	12.30
14w3d	6.30	1.95	19w5d	17.60	3.75	25w0d	33.10	6.00	30w2d	51.80	8.85	35w4d	71.60	12.30
14w4d	6.50	1.95	19w6d	18.00	3.75	25w1d	33.60	6.15	30w3d	52.40	9.00	35w5d	72.20	12.45
14w5d	6.80	1.95	20w0d	18.40	3.75	25w2d	34.10	6.15	30w4d	52.90	9.15	35w6d	72.70	12.60
14w6d	7.10	1.95	20w1d	18.70	3.90	25w3d	34.50	6.30	30w5d	53.40	9.15	36w0d	73.20	12.60
15w0d	7.30	2.10	20w2d	19.10	3.90	25w4d	35.00	6.30	30w6d	54.00	9.30	36w1d	73.70	12.75
15w1d	7.60	2.10	20w3d	19.50	3.90	25w5d	35.50	6.45	31w0d	54.50	9.30	36w2d	74.20	12.90
15w2d	7.80	2.10	20w4d	19.90	4.05	25w6d	36.00	6.45	31w1d	55.00	9.45	36w3d	74.70	12.90
15w3d	8.10	2.25	20w5d	20.20	4.05	26w0d	36.50	6.60	31w2d	55.60	9.60	36w4d	75.20	13.05
15w4d	8.40	2.25	20w6d	20.60	4.20	26w1d	36.90	6.60	31w3d	56.10	9.60	36w5d	75.70	13.20
15w5d	8.70	2.25	21w0d	21.00	4.20	26w2d	37.40	6.75	31w4d	56.70	9.75	36w6d	76.20	13.20
15w6d	8.90	2.25	21w1d	21.40	4.20	26w3d	37.90	6.75	31w5d	57.20	9.75	37w0d	76.80	13.35
16w0d	9.20	2.40	21w2d	21.80	4.35	26w4d	38.40	6.90	31w6d	57.70	9.90	37w1d	77.30	13.50
16w1d	9.50	2.40	21w3d	22.20	4.35	26w5d	38.90	6.90	32w0d	58.30	10.05	37w2d	77.70	13.65
16w2d	9.80	2.40	21w4d	22.60	4.50	26w6d	39.40	7.05	32w1d	58.80	10.05	37w3d	78.20	13.65
16w3d	10.10	2.55	21w5d	23.00	4.50	27w0d	39.90	7.05	32w2d	59.40	10.20	37w4d	78.70	13.80
16w4d	10.40	2.55	21w6d	23.40	4.50	27w1d	40.40	7.20	32w3d	59.90	10.20	37w5d	79.20	13.95
16w5d	10.70	2.55	22w0d	23.80	4.65	27w2d	40.90	7.20	32w4d	60.40	10.35	37w6d	79.70	13.95
16w6d	11.00	2.70	22w1d	24.20	4.65	27w3d	41.40	7.35	32w5d	61.00	10.50	38w0d	80.20	14.10
17w0d	11.30	2.70	22w2d	24.70	4.80	27w4d	41.90	7.35	32w6d	61.50	10.50	38w1d	80.70	14.25
17w1d	11.60	2.70	22w3d	25.10	4.80	27w5d	42.40	7.50	33w0d	62.10	10.65	38w2d	81.10	14.40
17w2d	11.90	2.85	22w4d	25.50	4.95	27w6d	42.90	7.50	33w1d	62.60	10.65	38w3d	81.60	14.40
17w3d	12.20	2.85	22w5d	25.90	4.95	28w0d	43.40	7.65	33w2d	63.10	10.80	38w4d	82.10	14.55
17w4d	12.50	2.85	22w6d	26.40	4.95	28w1d	44.00	7.65	33w3d	63.70	10.95	38w5d	82.60	14.70
17w5d	12.80	3.00	23w0d	26.80	5.10	28w2d	44.50	7.80	33w4d	64.20	10.95	38w6d	83.00	14.70
17w6d	13.20	3.00	23w1d	27.20	5.10	28w3d	45.00	7.80	33w5d	64.70	11.10	39w0d	83.50	14.85
18w0d	13.50	3.00	23w2d	27.70	5.25	28w4d	45.50	7.95	33w6d	65.30	11.25	39w1d	83.90	15.00
18w1d	13.80	3.15	23w3d	28.10	5.25	28w5d	46.00	7.95	34w0d	65.80	11.25	39w2d	84.40	15.15
18w2d	14.10	3.15	23w4d	28.50	5.40	28w6d	46.60	8.10	34w1d	66.40	11.40	39w3d	84.80	15.15
18w3d	14.50	3.15	23w5d	29.00	5.40	29w0d	47.10	8.10	34w2d	66.90	11.40	39w4d	85.30	15.30
18w4d	14.80	3.30	23w6d	29.40	5.55	29w1d	47.60	8.25	34w3d	67.40	11.55	39w5d	85.70	15.45
18w5d	15.20	3.30	24w0d	29.90	5.55	29w2d	48.10	8.40	34w4d	67.90	11.70	39w6d	86.10	15.60
18w6d	15.50	3.30	24w1d	30.30	5.55	29w3d	48.70	8.40	34w5d	68.50	11.70	40w0d	86.60	15.60
19w0d	15.80	3.45	24w2d	30.80	5.70	29w4d	49.20	8.55	34w6d	69.00	11.85			
19w1d	16.20	3.45	24w3d	31.30	5.70	29w5d	49.70	8.55	35w0d	69.50	12.00			

1-2-88 Fibula (FIB) CHITTY

Reference: Charts of fetal size: limb bones Lyn S. Chitty, Douglas G. Altman
BJOG: an International Journal of Obstetrics and Gynaecology August 2002, Vol. 109, pp. 919–929

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (weeks	FIB (mm)		
	3th Cent.	50th Cent.	97th Cent.
12	3.6	6.8	10.0
13	5.2	8.5	11.8
14	7.4	10.8	14.2
15	10.0	13.5	17.0
16	12.8	16.4	20.0
17	15.6	19.3	23.0
18	18.4	22.2	26.0
19	21.2	25.1	29.0
20	23.9	27.9	31.8
21	26.4	30.5	34.6
22	28.9	33.1	37.3
23	31.2	35.5	39.8
24	33.5	37.9	42.3
25	35.6	40.1	44.6
26	37.6	42.2	46.8
27	39.6	44.3	49.0
28	41.4	46.2	51.0
29	43.1	48.0	52.9
30	44.8	49.8	54.8
31	46.4	51.5	56.6
32	47.9	53.1	58.3
33	49.3	54.6	59.9
34	50.7	56.1	61.5
35	52.0	57.5	63.0
36	53.2	58.8	64.4
37	54.4	60.1	65.8
38	55.5	61.3	67.1
39	56.6	62.5	68.4
40	57.6	63.6	69.6
41	58.6	64.7	70.8
42	59.5	65.8	72.0

1-2-89 Fibula (FIB) JEANTY

Reference: Hansmann, Hackeloer, Staudach, Wittmann. "Ultrasound Diagnosis in Obstetrics and Gynecology." Springer-Verlag, New York, 1986, p182

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	FIB (mm)		
	5%	50%	95%
12	-	6	-
13	-	9	-
14	6	12	19
15	9	15	21
16	13	18	23
17	13	21	28
18	15	23	31
19	19	26	33
20	21	28	36
21	24	31	37
22	27	33	39
23	28	35	42
24	29	37	45
25	34	40	45
26	36	42	47
27	37	44	50
28	38	45	53
29	41	47	54
30	43	49	56
31	42	51	59
32	42	52	63
33	46	54	62
34	46	55	65
35	51	57	62
36	54	58	63
37	54	59	65
38	56	61	65
39	56	62	67
40	59	63	67

1-2-90 Fibula (FIB) SIRIRAJ

Reference: Sunsaneevithayakul P, Siwadune T, Boriboonhirunsarn D, Titapant V, Sutanthavibul A. Ultrasound Measurement of Tibia and Fibula Bone Length in Thai Fetus. Siriraj Medical Journal 2000 Nov;52(11):733.

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 41.0 weeks

GA (weeks	FIB (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	1.74	3.54	5.34
13	4.58	6.42	8.27
14	7.38	9.26	11.15
15	10.13	12.06	14.00
16	12.84	14.82	16.80
17	15.51	17.53	19.55
18	18.12	20.18	22.25
19	20.67	22.78	24.89
20	23.17	25.33	27.48
21	25.62	27.82	30.01
22	27.99	30.24	32.48
23	30.31	32.59	34.88
24	32.55	34.88	37.21
25	34.72	37.10	39.48
26	36.82	39.24	41.66
27	38.83	41.30	43.77
28	40.77	43.28	45.80
29	42.63	45.18	47.74
30	44.39	46.99	49.59
31	46.07	48.72	51.36
32	47.66	50.34	53.03
33	49.14	51.88	54.61
34	50.53	53.31	56.09
35	51.82	54.65	57.47
36	53.01	55.87	58.74
37	54.08	56.99	59.91
38	55.05	58.00	60.96
39	55.90	58.90	61.90
40	56.63	59.68	62.72
41	57.24	60.34	63.43

1-2-91 Foot (FOOT) CHITTY

Reference: Sunsaneevithayakul P, Siwadune T, Boriboonhirunsarn D, Titapant V, Sutanthavibul A. Ultrasound Measurement of Tibia and Fibula Bone Length in Thai Fetus. Siriraj Medical Journal 2000 Nov;52(11):733.

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (weeks	FOOT (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	5.9	8.9	11.8
13	8.5	11.7	14.9
14	11.3	14.6	18.0
15	14.0	17.6	21.2
16	16.8	20.6	24.4
17	19.6	23.6	27.6
18	22.4	26.6	30.8
19	25.2	29.6	34.0
20	28.0	32.6	37.2
21	30.8	35.6	40.4
22	33.5	38.6	43.6
23	36.2	41.5	46.7
24	38.9	44.4	49.8
25	41.5	47.2	52.8
26	44.1	50.0	55.8
27	46.6	52.7	58.7
28	49.1	55.3	61.6
29	51.4	57.9	64.3
30	53.7	60.4	67.0
31	55.9	62.8	69.6
32	58.0	65.1	72.1
33	60.0	67.3	74.5
34	61.9	69.4	76.8
35	63.7	71.4	79.0
36	65.4	73.3	81.1
37	66.9	75.0	83.1
38	68.4	76.7	85.0
39	69.7	78.2	86.7
40	70.9	79.6	88.3
41	71.9	80.8	89.7
42	72.8	81.9	91.0

1-2-92 Gestational Sac (GS) HELLMAN

Reference: Hellman LM, Kobayashi M, Fillisti L., et al. "Growth and development of the human fetus prior to the 20th week of gestation". American Journal of Obstetrics and Gynecology; March 15; 1969; 789-800

$$GS = 0{,}702 \times GA - 2{,}543$$

Input Unit: w (weeks)

Output Unit: cm

Min Range: 6.0 weeks

Max Range: 12.0 weeks

GA (weeks)	GS (cm)		
	-2SD	Mean	+2SD
6.0	1.03	1.67	2.31
6.5	1.38	2.02	2.66
7.0	1.73	2.37	3.01
7.5	2.08	2.72	3.36
8.0	2.43	3.07	3.71
8.5	2.78	3.42	4.06
9.0	3.14	3.78	4.42
9.5	3.49	4.13	4.77
10.0	3.84	4.48	5.12
10.5	4.19	4.83	5.47
11.0	4.54	5.18	5.82
11.5	4.89	5.53	6.17
12.0	5.24	5.88	6.52

1-2-93 Gestational Sac (GS) NYBERG

Reference: Transvaginal Ultrasound, Nyberg et al, 1992: Table A-6:335

Input Unit: d (days)
Output Unit: mm
Min Range: 32 days
Max Range: 84 days

GA (days)	GS (mm) Mean	GA (days)	GS (mm) Mean
32	3	59	28
33	4	60	29
34	5	61	30
35	5.5	62	31
36	6	63	32
37	7	64	33
38	8	65	34
39	9	66	35
40	10	67	36
41	11	68	37
42	12	69	38
43	13	70	39
44	14	71	40
45	15	72	41
46	16	73	42
47	17	74	43
48	18	75	44
49	19	76	45
50	20	77	46
51	21	78	47
52	22	79	48
53	23	80	49
54	24	81	50
55	25	82	51
56	26	83	52
57	26.5	84	53
58	27		

1-2-94 Gestational Sac (GS) REMPEN

Reference: Rempen A. "Biometrie in der Frühgravidität (I. Trimenon)" Der Frauenarzt; 32,4 /1991

GA (weeks)	GS (cm)			GA (weeks)	GS (cm)		
	5%	50%	95%		5%	50%	95%
4w4d	0.00	0.05	1.10	9w0d	2.61	3.66	4.71
4w5d	0.00	0.18	1.23	9w1d	2.71	3.76	4.81
4w6d	0.00	0.32	1.37	9w2d	2.80	3.85	4.90
5w0d	0.00	0.45	1.50	9w3d	2.90	3.95	5.00
5w1d	0.00	0.58	1.63	9w4d	2.99	4.04	5.09
5w2d	0.00	0.71	1.76	9w5d	3.08	4.13	5.18
5w3d	0.00	0.84	1.89	9w6d	3.17	4.22	5.27
5w4d	0.00	0.97	2.02	10w0d	3.26	4.31	5.36
5w5d	0.04	1.09	2.14	10w1d	3.35	4.40	5.45
5w6d	0.17	1.22	2.27	10w2d	3.44	4.49	5.54
6w0d	0.29	1.34	2.39	10w3d	3.52	4.57	5.62
6w1d	0.41	1.46	2.51	10w4d	3.61	4.66	5.71
6w2d	0.54	1.59	2.64	10w5d	3.69	4.74	5.79
6w3d	0.66	1.71	2.76	10w6d	3.77	4.82	5.87
6w4d	0.78	1.83	2.88	11w0d	3.85	4.90	5.95
6w5d	0.89	1.94	2.99	11w1d	3.93	4.98	6.03
6w6d	1.01	2.06	3.11	11w2d	4.01	5.06	6.11
7w0d	1.12	2.17	3.22	11w3d	4.09	5.14	6.19
7w1d	1.24	2.29	3.34	11w4d	4.16	5.21	6.26
7w2d	1.35	2.40	3.45	11w5d	4.24	5.29	6.34
7w3d	1.46	2.51	3.56	11w6d	4.31	5.36	6.41
7w4d	1.57	2.62	3.67	12w0d	4.38	5.43	6.48
7w5d	1.68	2.73	3.78	12w1d	4.46	5.51	6.56
7w6d	1.79	2.84	3.89	12w2d	4.53	5.58	6.63
8w0d	1.90	2.95	4.00	12w3d	4.59	5.64	6.69
8w1d	2.00	3.05	4.10	12w4d	4.66	5.71	6.76
8w2d	2.11	3.16	4.21	12w5d	4.73	5.78	6.83
8w3d	2.21	3.26	4.31	12w6d	4.79	5.84	6.89
8w4d	2.31	3.36	4.41	13w0d	4.86	5.91	6.96
8w5d	2.41	3.46	4.51	13w1d	4.92	5.97	7.02
8w6d	2.51	3.56	4.61	13w2d	4.98	6.03	7.08

1-2-95 Head Circumference (HC) ASUM

Reference: *"Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.*
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	HC (cm)		GA (week)	HC (cm)	
	mean	±2SD		mean	±2SD
11	5.9	1.5	27	25.0	2.0
12	7.0	1.5	28	26.3	2.0
13	8.4	1.5	29	26.9	2.5
14	9.6	1.5	30	27.4	2.5
15	10.8	1.5	31	28.4	2.5
16	12.8	1.5	32	28.8	2.5
17	14.1	1.5	33	30.0	2.5
18	15.1	2.0	34	30.5	2.5
19	16.0	2.0	35	31.0	2.5
20	17.0	2.0	36	31.7	2.5
21	17.6	2.0	37	32.1	2.5
22	18.8	2.0	38	32.8	2.5
23	21.0	2.0	39	33.6	2.5
24	22.0	2.0	40	34.0	2.5
25	23.1	2.0	41	34.4	2.5
26	23.8	2.0			

1-2-96 Head Circumference (HC) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil , Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 16 weeks
Max Range: 40 weeks

GA (week)	HC (mm)				
	3%	10%	50%	90%	97%
16	105.80	110.58	120.86	131.25	136.11
17	118.67	123.78	134.49	145.38	150.39
18	131.08	136.36	147.55	158.92	164.11
19	143.00	148.53	160.29	172.14	177.48
20	154.53	160.21	172.47	184.86	190.54
21	165.41	171.49	184.21	197.12	203.09
22	176.12	182.35	195.74	208.91	215.15
23	186.32	192.31	206.64	220.26	226.76
24	196.19	203.00	217.18	231.39	238.00
25	205.50	212.40	227.32	241.91	248.81
26	214.44	221.57	236.72	252.00	259.23
27	222.87	230.33	246.00	261.75	269.13
28	231.00	238.56	254.77	271.00	278.57
29	238.40	246.35	263.00	279.71	287.56
30	245.86	253.74	270.84	288.13	296.00
31	252.54	260.81	278.33	296.00	304.27
32	258.86	267.22	285.29	303.54	312.00
33	264.62	273.38	292.00	310.40	319.10
34	270.14	279.00	298.10	317.00	325.91
35	275.33	284.23	303.62	323.00	332.16
36	279.79	289.00	308.81	328.75	338.00
37	283.90	293.32	313.52	334.00	343.34
38	287.63	297.29	317.88	338.64	348.29
39	290.88	300.76	321.86	343.00	352.67
40	293.00	303.00	324.00	346.00	356.00

1-2-97 Head Circumference (HC) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101, 1994, pages 35-43.

GA (Week)	HC (mm)		
	-1SD	Mean	+1SD
12	70.2	75.2	80.2
13	78.7	85.5	92.3
14	96.6	103.1	109.6
15	104.2	111.4	118.6
16	119.6	126.8	134.0
17	124.9	135.4	145.9
18	142.6	151.3	160.0
19	155.9	164.8	173.7
20	163.7	174.0	184.3
21	180.6	188.9	197.2
22	187.4	197.8	208.2
23	197.3	210.0	222.7
24	214.6	223.5	232.4
25	225.6	233.7	241.8
26	233.3	244.8	256.3
27	246.2	256.1	266.0
28	260.2	269.9	279.0
29	275.7	281.9	287.9
30	279.9	287.6	295.3
31	287.6	297.1	306.6
32	293.6	304.8	316.0
33	298.6	310.8	323.0
34	306.0	316.1	326.2
35	311.0	323.3	335.6
36	318.6	331.5	344.4
37	323.1	334.8	346.5
38	317.1	337.3	357.5
39	330.1	340.4	350.7
40	332.6	349.7	366.8
41	341.5	355.9	370.3
42	340.5	352.3	364.1

1-2-98 Head Circumference (HC) CHITTY (derived)

Reference: Chitty L.S., Altman D.G., Hendesson A., Campell S., Charts of fetal size:2 Head measurements Br J Obstetric Gynaecology 1994, Vol 101, pages 35-43.

NOTE: HC derived from BPD/OFD

GA (Week)	HC (mm)		
	5th Cent.	50th Cent.	95th Cent.
12	57.1	68.1	79.2
13	70.8	82.2	93.6
14	84.2	96.0	107.8
15	97.5	109.7	121.9
16	110.6	123.1	135.7
17	123.4	136.4	149.3
18	136.0	149.3	162.7
19	148.3	162.0	175.7
20	160.4	174.5	188.6
21	172.1	186.6	201.1
22	183.6	198.5	213.3
23	194.8	210.0	225.3
24	205.6	221.2	236.9
25	216.1	232.1	248.1
26	226.2	242.6	259.0
27	235.9	252.7	269.5
28	245.3	262.5	279.6
29	254.3	271.8	289.4
30	262.8	280.7	298.7
31	270.9	289.2	307.6
32	278.6	297.3	316.0
33	285.8	304.9	324.0
34	292.6	312.0	331.5
35	298.8	318.7	338.5
36	304.6	324.8	345.0
37	309.8	330.4	351.0
38	314.5	335.5	356.5
39	318.7	340.0	361.4
40	322.3	344.0	365.8
41	325.3	347.4	369.6
42	327.7	350.3	372.8

1-2-99 Head Circumference (HC) HADLOCK

Reference: Hadlock F.P., Deter R.L.; Harrist R.B., Park S.K.
"Estimating Fetal Age: Computer-Assisted Analysis of Multiple Fetal Growth Parameters"
Radiology 1984; 152: 497-501

$$HC = -11{,}48 + 1{,}56 \times GA - 0{,}0002548 \times GA^3$$

Input Unit: w (weeks)

Output Unit: cm

Min Range: 12.0 weeks

Max Range: 40.0 weeks

Standard Deviation (±): 1SD = 1.00 cm

Corresponds to: 16% … 84% (-1.00cm … +1.00cm)

GA (weeks)	HC (cm)	GA (weeks)	HC (cm)
12.0	6.80	26.5	25.10
12.5	7.50	27.0	25.60
13.0	8.20	27.5	26.10
13.5	8.90	28.0	26.60
14.0	9.70	28.5	27.10
14.5	10.40	29.0	27.50
15.0	11.00	29.5	28.00
15.5	11.70	30.0	28.40
16.0	12.40	30.5	28.80
16.5	13.10	31.0	29.30
17.0	13.80	31.5	29.70
17.5	14.40	32.0	30.10
18.0	15.10	32.5	30.40
18.5	15.80	33.0	30.80
19.0	16.40	33.5	31.20
19.5	17.00	34.0	31.50
20.0	17.70	34.5	31.80
20.5	18.30	35.0	32.20
21.0	18.90	35.5	32.50
21.5	19.50	36.0	32.80
22.0	20.10	36.5	33.00
22.5	20.70	37.0	33.30
23.0	21.30	37.5	33.50
23.5	21.90	38.0	33.80
24.0	22.40	38.5	34.00
24.5	23.00	39.0	34.20
25.0	23.50	39.5	34.40
25.5	24.10	40.0	34.60
26.0	24.60		

1-2-100 Head Circumference (HC) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.434.

GA (weeks)	HC (cm)		
	5%	50%	95%
14	10.60	10.60	10.60
15	10.30	11.50	12.90
16	11.40	12.70	14.10
17	12.50	14.00	15.30
18	13.80	15.20	16.60
19	14.90	16.40	18.00
20	16.10	17.60	19.30
21	17.30	19.00	20.60
22	18.50	20.30	21.90
23	19.80	21.50	23.20
24	21.00	22.60	24.40
25	22.30	24.00	25.70
26	23.40	25.10	26.80
27	24.40	26.30	28.00
28	25.40	27.40	29.00
29	26.30	28.40	30.10
30	27.30	29.30	31.00
31	28.20	30.30	32.00
32	29.00	31.10	32.80
33	29.70	31.80	33.50
34	30.30	32.50	34.30
35	31.00	33.20	34.90
36	31.50	33.70	35.50
37	32.10	34.00	36.00
38	32.50	34.40	36.40
39	32.90	34.70	36.90
40	33.30	34.90	37.20

1-2-101 Head Circumference (HC) JACOT-GUILLARMOD

Reference: Jacot-Guillarmod M., Vial Y., Hohlfeld P., Courbes de Biomètrie, Lausanne CHUV 2003

Input Unit: w (weeks)
Output Unit: mm
Min Range: 15.0 weeks
Max Range: 41.0 weeks

GA	HC (mm)		
(weeks)	5%	50%	95%
15	103.2	117.2	129.0
16	114.5	128.5	141.0
17	125.7	140.0	153.2
18	137.0	151.6	165.5
19	148.2	163.2	177.7
20	159.4	174.7	190.0
21	170.5	186.3	202.2
22	181.4	197.7	214.2
23	192.2	209.0	226.1
24	202.7	220.1	237.7
25	213.0	230.9	249.1
26	223.0	241.5	260.1
27	232.7	251.6	270.8
28	242.0	261.4	281.0
29	250.9	270.8	290.7
30	259.4	279.7	299.9
31	267.5	288.0	308.5
32	275.0	295.7	316.4
33	282.0	302.8	323.7
34	288.4	309.3	330.3
35	294.2	315.0	336.0
36	299.3	319.9	340.9
37	303.8	323.9	344.9
38	307.5	327.1	348.0
39	310.5	329.4	350.0
40	312.7	330.7	351.1
41	314.0	331.0	351.0

1-2-102 Head Circumference (HC) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J. C., Cantraine F., Tack B., Bracken M.; "A longitudinal study of fetal head biometry" American Journal of Perinatology; Volume1; Number 2; January 1984

GA (weeks)	HC (cm)		
	5%	50%	95%
10	2.60	5.00	7.40
11	3.80	6.30	8.70
12	5.10	7.50	10.00
13	6.40	8.80	11.20
14	7.60	10.10	12.50
15	8.90	11.30	13.80
16	10.10	12.60	15.00
17	11.40	13.80	16.30
18	12.60	15.10	17.50
19	13.80	16.30	18.70
20	15.00	17.50	19.90
21	16.20	18.70	21.10
22	17.40	19.80	22.30
23	18.50	21.00	23.40
24	19.60	22.10	24.50
25	20.70	23.20	25.60
26	21.80	24.20	26.60
27	22.80	25.20	27.70
28	23.80	26.20	28.60
29	24.70	27.10	29.60
30	25.60	28.10	30.50
31	26.50	28.90	31.30
32	27.30	29.70	32.20
33	28.10	30.50	32.90
34	28.80	31.20	33.60
35	29.40	31.90	34.30
36	30.00	32.50	34.90
37	30.60	33.00	35.50
38	31.10	33.50	35.90
39	31.50	33.90	36.40
40	31.90	34.30	36.70

1-2-103 Head Circumference (HC) JOHNSEN

Reference: Johnsen SL, Wilsgaard T, Rasmussen S, Soliien R, Kiserud T
Longitudinal reference charts for fetal head, abdomen and femur
European Journal of Obstetrics & Gynecology and Reproductive Biology 127 (2006) 172–185

Input Unit: w (weeks)
Output Unit: mm
Min Range: 10 weeks
Max Range: 40+6 weeks + days

GA (weeks)	HC (mm)		
	10%	50%	90%
10	42	49	56
11	52	60	68
12	63	71	81
13	75	84	93
14	87	96	106
15	99	109	119
16	111	121	132
17	124	134	145
18	136	147	158
19	148	159	171
20	160	172	184
21	172	184	196
22	184	196	208
23	195	207	220
24	206	218	231
25	217	229	242
26	227	240	253
27	237	250	263
28	246	259	273
29	255	268	283
30	263	277	292
31	271	285	300
32	279	293	309
33	286	301	316
34	292	307	323
35	298	314	330
36	304	320	336
37	309	325	342
38	314	330	347
39	318	334	352
40	322	338	356
40+6	324	341	359

1-2-104 Head Circumference (HC) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	HC (cm)		
	5%	50%	95%
12	5.97	7.21	8.45
13	7.33	8.61	9.89
14	8.67	9.99	11.31
15	9.99	11.35	12.70
16	11.29	12.68	14.07
17	12.56	13.99	15.42
18	13.81	15.27	16.74
19	15.02	16.52	18.03
20	16.21	17.75	19.29
21	17.36	18.94	20.52
22	18.49	20.10	21.71
23	19.57	21.22	22.87
24	20.62	22.31	24.00
25	21.64	23.36	25.09
26	22.61	24.37	26.13
27	23.55	25.34	27.14
28	24.44	26.27	28.11
29	25.29	27.16	29.03
30	26.09	28.00	29.91
31	26.84	28.79	30.73
32	27.55	29.53	31.51
33	28.21	30.22	32.24
34	28.81	30.87	32.92
35	29.36	31.45	33.55
36	29.86	31.99	34.12
37	30.30	32.46	34.63
38	30.68	32.88	35.09
39	31.00	33.24	35.48
40	31.26	33.54	35.82
41	31.46	33.77	36.09
42	31.59	33.94	36.30

1-2-105 Head Circumference (HC) LESSOWAY

Reference: Lessoway,V.A., Schulzer,M., Wittmann,B.K., Gagnon,F.A., Wilson,R.D.," Ultrasound fetal biometry charts for a North American Caucasian population", J Clin.Ultrasound, Vol. 26, No. 9, 1998, pages 433-453.

Input Unit: weeks + days
Output Unit: mm
Min Range: 12 weeks 0 days
Max Range: 42 weeks 0 days

GA	HC (mm)			GA	HC(mm)			GA	HC (mm)			GA	HC (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
12w0d	63.6	76.4	86.6	20w0d	163.0	175.3	188.2	28w0d	252.3	267.8	286.0	36w0d	308.7	327.3	344.8
12w1d	65.4	78.2	88.3	20w1d	164.6	177.1	190.1	28w1d	253.7	269.2	287.5	36w1d	309.4	328.0	345.5
12w2d	67.2	79.9	90.1	20w2d	166.2	178.8	191.9	28w2d	255.1	270.6	288.9	36w2d	310.0	328.6	346.2
12w3d	69.1	81.7	91.9	20w3d	167.8	180.5	193.8	28w3d	256.5	272.0	290.4	36w3d	310.6	329.2	346.9
12w4d	70.9	83.4	93.6	20w4d	169.4	182.3	195.6	28w4d	257.8	273.3	291.8	36w4d	311.2	329.8	347.6
12w5d	72.8	85.2	95.4	20w5d	171.0	184.0	197.5	28w5d	259.2	274.7	293.3	36w5d	311.8	330.4	348.3
12w6d	74.6	87.0	97.2	20w6d	172.6	185.8	199.4	28w6d	260.5	276.0	294.7	36w6d	312.4	331.0	348.9
13w0d	76.4	88.8	99.0	21w0d	174.2	187.5	201.2	29w0d	261.8	277.3	296.1	37w0d	313.0	331.6	349.6
13w1d	78.3	90.5	100.8	21w1d	175.8	189.3	203.1	29w1d	263.1	278.6	297.5	37w1d	313.5	332.1	350.3
13w2d	80.2	92.3	102.5	21w2d	177.4	191.0	204.9	29w2d	264.4	279.9	298.8	37w2d	314.1	332.7	350.9
13w3d	82.0	94.1	104.3	21w3d	179.0	192.8	206.8	29w3d	265.7	281.2	300.2	37w3d	314.6	333.2	351.6
13w4d	83.9	95.9	106.1	21w4d	180.6	194.6	208.6	29w4d	266.9	282.5	301.5	37w4d	315.1	333.7	352.2
13w5d	85.8	97.7	107.9	21w5d	182.2	196.3	210.5	29w5d	268.1	283.8	302.8	37w5d	315.6	334.2	352.9
13w6d	87.7	99.5	109.7	21w6d	183.9	198.1	212.3	29w6d	269.4	285.0	304.1	37w6d	316.1	334.8	353.5
14w0d	89.6	101.3	111.5	22w0d	185.5	199.8	214.2	30w0d	270.6	286.3	305.4	38w0d	316.6	335.3	354.2
14w1d	91.4	103.1	113.3	22w1d	187.1	201.6	216.0	30w1d	271.8	287.5	306.6	38w1d	317.1	335.7	354.9
14w2d	93.3	104.9	115.2	22w2d	188.8	203.3	217.9	30w2d	273.0	288.8	307.9	38w2d	317.5	336.2	355.5
14w3d	95.2	106.8	117.0	22w3d	190.4	205.1	219.7	30w3d	274.1	290.0	309.1	38w3d	318.0	336.7	356.2
14w4d	97.1	108.6	118.8	22w4d	192.0	206.8	221.5	30w4d	275.3	291.2	310.3	38w4d	318.4	337.2	356.9
14w5d	99.0	110.4	120.7	22w5d	193.7	208.6	223.3	30w5d	276.4	292.4	311.5	38w5d	318.9	337.6	357.6
14w6d	100.9	112.2	122.5	22w6d	195.3	210.3	225.1	30w6d	277.5	293.6	312.6	38w6d	319.3	338.1	358.3
15w0d	102.8	114.0	124.3	23w0d	197.0	212.1	227.0	31w0d	278.6	294.8	313.8	39w0d	319.8	338.6	359.0
15w1d	104.7	115.9	126.2	23w1d	198.6	213.8	228.8	31w1d	279.7	295.9	314.9	39w1d	320.2	339.0	359.7
15w2d	106.6	117.7	128.0	23w2d	200.2	215.6	230.6	31w2d	280.8	297.1	316.1	39w2d	320.6	339.5	360.4
15w3d	108.5	119.5	129.9	23w3d	201.9	217.3	232.4	31w3d	281.9	298.2	317.2	39w3d	321.1	339.9	361.1
15w4d	110.4	121.3	131.7	23w4d	203.5	219.0	234.2	31w4d	282.9	299.4	318.3	39w4d	321.5	340.3	361.9
15w5d	112.2	123.1	133.5	23w5d	205.2	220.8	236.0	31w5d	284.0	300.5	319.3	39w5d	321.9	340.8	362.6
15w6d	114.1	124.9	135.4	23w6d	206.8	222.5	237.8	31w6d	285.0	301.6	320.4	39w6d	322.4	341.2	363.4
16w0d	115.9	126.7	137.2	24w0d	208.4	224.2	239.6	32w0d	286.0	302.7	321.4	40w0d	322.8	341.6	364.2
16w1d	117.8	128.5	139.0	24w1d	210.1	225.9	241.4	32w1d	287.0	303.8	322.5	40w1d	323.3	342.1	364.9
16w2d	119.6	130.3	140.8	24w2d	211.7	227.6	243.2	32w2d	288.0	304.9	323.5	40w2d	323.7	342.5	365.7
16w3d	121.4	132.1	142.7	24w3d	213.3	229.3	244.9	32w3d	289.0	306.0	324.5	40w3d	324.2	343.0	366.5
~~16w4d~~	~~123.2~~	~~133.8~~	~~144.5~~	~~24w4d~~	~~214.9~~	~~230.9~~	246.7	32w4d	289.9	307.0	325.5	40w4d	324.6	343.4	367.3
16w5d	125.0	135.6	146.3	24w5d	216.5	232.6	248.5	32w5d	290.9	308.0	326.4	40w5d	325.1	343.8	368.1
16w6d	126.7	137.4	148.1	24w6d	218.1	234.3	250.2	32w6d	291.8	309.1	327.4	40w6d	325.5	344.3	368.9
17w0d	128.5	139.1	150.0	25w0d	219.8	235.9	251.9	33w0d	292.7	310.1	328.3	41w0d	326.0	344.7	369.7

GA	HC (mm)			GA	HC(mm)			GA	HC (mm)			GA	HC (mm)		
(Age)	10%	50%	90%	(AGE)	10%	50%	90%	(Age)	10%	50%	90%	(Age)	10%	50%	90%
17w1d	130.2	140.8	151.8	25w1d	221.4	237.6	253.7	33w1d	293.6	311.1	329.2	41w1d	326.5	345.1	370.5
17w2d	131.9	142.6	153.6	25w2d	223.0	239.2	255.4	33w2d	294.5	312.0	330.1	41w2d	327.0	345.6	371.4
17w3d	133.7	144.3	155.4	25w3d	224.6	240.8	257.1	33w3d	295.4	313.0	330.9	41w3d	327.5	346.0	372.2
17w4d	135.4	146.0	157.2	25w4d	226.2	242.4	258.8	33w4d	296.2	313.9	331.8	41w4d	327.9	346.4	373.0
17w5d	137.1	147.8	159.1	25w5d	227.8	244.0	260.5	33w5d	297.0	314.9	332.6	41w5d	328.4	346.9	373.8
17w6d	138.7	149.5	160.9	25w6d	229.4	245.6	262.2	33w6d	297.9	315.8	333.5	41w6d	328.9	347.3	374.6
18w0d	140.4	151.2	162.7	26w0d	231.0	247.1	263.9	34w0d	298.7	316.6	334.3	42w0d	329.4	347.8	375.4
18w1d	142.1	152.9	164.5	26w1d	232.5	248.7	265.5	34w1d	299.5	317.5	335.1				
18w2d	143.7	154.6	166.3	26w2d	234.1	250.3	267.2	34w2d	300.3	318.4	335.9				
18w3d	145.4	156.4	168.1	26w3d	235.7	251.8	268.8	34w3d	301.0	319.2	336.6				
18w4d	147.0	158.1	169.9	26w4d	237.3	253.3	270.5	34w4d	301.8	320.0	337.4				
18w5d	148.6	159.8	171.8	26w5d	238.8	254.8	272.1	34w5d	302.5	320.8	338.2				
18w6d	150.2	161.5	173.6	26w6d	240.4	256.3	273.6	34w6d	303.3	321.6	339.0				
19w0d	151.8	163.2	175.4	27w0d	241.9	257.8	275.2	35w0d	304.0	322.4	339.7				
19w1d	153.4	165.0	177.2	27w1d	243.4	259.3	276.8	35w1d	304.7	323.1	340.5				
19w2d	155.1	166.7	179.1	27w2d	244.9	260.7	278.4	35w2d	305.4	323.9	341.2				
19w3d	156.6	168.4	180.9	27w3d	246.4	262.2	279.9	35w3d	306.1	324.6	341.9				
19w4d	158.2	170.1	182.7	27w4d	247.9	263.6	281.4	35w4d	306.8	325.3	342.7				
19w5d	159.8	171.9	184.6	27w5d	249.4	265.0	283.0	35w5d	307.4	326.0	343.4				
19w6d	161.4	173.6	186.4	27w6d	250.8	266.4	284.5	35w6d	308.1	326.6	344.1				

1-2-106 Head Circumference (HC) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	HC (cm)			GA (weeks)	HC (cm)		
	5%	50%	95%		5%	50%	95%
12.5	8.00	9.20	10.40	27.5	25.30	26.80	28.40
13.0	8.40	9.60	10.80	28.0	25.80	27.30	28.90
13.5	8.90	10.10	11.30	28.5	26.30	27.80	29.40
14.0	9.40	10.60	11.90	29.0	26.80	28.30	29.90
14.5	10.00	11.20	12.40	29.5	27.20	28.80	30.30
15.0	10.50	11.80	13.00	30.0	27.70	29.20	30.80
15.5	11.10	12.40	13.70	30.5	28.10	29.70	31.30
16.0	11.70	13.00	14.30	31.0	28.50	30.10	31.70
16.5	12.30	13.60	14.90	31.5	28.90	30.50	32.10
17.0	13.00	14.30	15.60	32.0	29.30	30.90	32.50
17.5	13.60	14.90	16.20	32.5	29.70	31.30	32.90
18.0	14.20	15.50	16.80	33.0	30.00	31.60	33.30
18.5	14.80	16.20	17.50	33.5	30.30	32.00	33.60
19.0	15.50	16.80	18.10	34.0	30.70	32.30	34.00
19.5	16.10	17.40	18.80	34.5	31.00	32.60	34.30
20.0	16.70	18.10	19.40	35.0	31.30	32.90	34.60
20.5	17.30	18.70	20.10	35.5	31.50	33.20	34.90
21.0	18.00	19.30	20.70	36.0	31.80	33.50	35.20
21.5	18.60	20.00	21.40	36.5	32.00	33.70	35.40
22.0	19.20	20.60	22.00	37.0	32.20	33.90	35.60
22.5	19.80	21.20	22.60	37.5	32.40	34.10	35.90
23.0	20.40	21.80	23.20	38.0	32.60	34.30	36.10
23.5	21.00	22.40	23.80	38.5	32.70	34.50	36.20
24.0	21.60	23.00	24.40	39.0	32.90	34.60	36.40
24.5	22.10	23.60	25.00	39.5	33.00	34.80	36.50
25.0	22.70	24.10	25.60	40.0	33.10	34.90	36.60
25.5	23.20	24.70	26.20	40.5	33.20	34.90	36.70
26.0	23.80	25.30	26.70	41.0	33.20	35.00	36.80
26.5	24.30	25.80	27.30	41.5	33.20	35.00	36.90
27.0	24.80	26.30	27.80				

1-2-107 Head Circumference (HC) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (week)	HC (cm)		
	5th centile	Median	95th centile
14	10.20	11.00	11.80
15	11.10	12.00	12.90
16	12.00	13.00	14.00
17	13.00	14.10	15.20
18	14.10	15.20	16.40
19	15.10	16.30	17.60
20	16.20	17.50	18.90
21	17.30	18.70	20.10
22	18.40	19.80	21.40
23	19.50	21.00	22.70
24	20.60	22.20	24.00
25	21.70	23.40	25.20
26	22.70	24.50	26.40
27	23.80	25.60	27.70
28	24.80	26.70	28.80
29	25.70	27.70	29.90
30	26.60	28.70	30.90
31	27.40	29.60	31.90
32	28.20	30.40	32.80
33	28.80	31.10	33.60
34	29.40	31.70	34.20
35	29.90	32.30	34.80
36	30.30	32.70	35.30
37	30.60	33.00	35.60
38	30.80	33.20	35.80
39	30.90	33.30	35.90

1-2-108 Head Circumference (HC) SIRIRAJ

Reference: Sutanthavibul A. Charts of Thai fetal biometries: Head Circumference. Siriraj Hosp Gaz 2000; 52: 448

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 41.0 weeks

GA (weeks	HC (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	66.13	73.58	81.03
13	77.00	84.52	92.05
14	88.08	95.69	103.30
15	99.33	107.03	114.72
16	110.71	118.50	126.29
17	122.17	130.06	137.95
18	133.67	141.67	149.67
19	145.17	153.28	161.39
20	156.62	164.84	173.07
21	167.97	176.33	184.68
22	179.20	187.68	196.17
23	190.24	198.87	207.49
24	201.07	209.83	218.60
25	211.63	220.54	229.46
26	221.88	230.95	240.02
27	231.78	241.02	250.25
28	241.29	250.69	260.09
29	250.36	259.93	269.51
30	258.95	268.70	278.45
31	267.01	276.95	286.89
32	274.50	284.63	294.76
33	281.38	291.71	302.04
34	287.61	298.15	308.68
35	293.14	303.88	314.63
36	297.93	308.89	319.85
37	301.93	313.11	324.29
38	305.10	316.51	327.92
39	307.40	319.05	330.69
40	308.78	320.67	332.56
41	309.21	321.34	333.48

1-2-109 Head Circumference (HC) VERBURG

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: w (weeks)
Output Unit: mm
Min Range: 10.0 weeks
Max Range: 40.0 weeks

Head Circumference	Mean	$-36.9589 + 1.7628 \times GA^2 - 0.4143 \times GA^2 \times \log(GA)$
	SD	$-0.3106 + 0.3138 \times GA$

GA (week)	HC (mm)			GA (week)	HC (mm)		
	3th Cent.	50th Cent.	97th Cent.		3th Cent.	50th Cent.	97th Cent.
10	38.6	43.9	49.2	26	227.4	242.2	257.0
11	50.2	56.1	62.0	27	237.3	252.7	268.1
12	62.1	68.6	75.1	28	246.8	262.7	278.7
13	74.3	81.4	88.5	29	255.8	272.3	288.8
14	86.6	94.3	101.9	30	264.2	281.4	298.5
15	99.0	107.2	115.5	31	272.2	289.9	307.6
16	111.4	120.3	129.1	32	279.5	297.8	316.1
17	123.8	133.3	142.7	33	286.3	305.2	324.1
18	136.2	146.2	156.2	34	292.5	312.0	331.4
19	148.4	159.0	169.7	35	298.0	318.1	338.1
20	160.5	171.7	182.9	36	302.9	323.5	344.2
21	172.4	184.2	196.0	37	307.0	328.3	349.5
22	184.0	196.4	208.8	38	310.5	332.3	354.2
23	195.4	208.4	221.4	39	313.2	335.7	358.1
24	206.4	220.0	233.6	40	315.2	338.2	361.3
25	217.1	231.3	245.5				

1-2-110 Humerus Length (HL) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway - Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	HL (cm)		GA (Week)	HL (cm)	
	mean	±2SD		mean	±2SD
11	0.80	0.30	27	4.70	0.40
12	0.90	0.20	28	5.00	0.50
13	1.10	0.30	29	5.10	0.50
14	1.40	0.40	30	5.20	0.50
15	1.70	0.55	31	5.40	0.50
16	2.10	0.40	32	5.60	0.50
17	2.50	0.50	33	5.70	0.60
18	2.70	0.55	34	5.90	0.55
19	2.90	0.50	35	6.00	0.60
20	3.10	0.50	36	6.20	0.50
21	3.20	0.60	37	6.30	0.60
22	3.50	0.60	38	6.40	0.60
23	3.80	0.40	39	6.50	0.55
24	4.00	0.60	40	6.60	0.60
25	4.30	0.50	41	6.80	0.60
26	4.40	0.40			

1-2-111 Humerus Length (HL) CHITTY

Reference: Charts of fetal size: limb bones Lyn S. Chitty, Douglas G. Altman
BJOG: an International Journal of Obstetrics and Gynaecology August 2002, Vol. 109, pp. 919–929

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (weeks)	HL (mm)		
	3th Cent.	50th Cent.	97th Cent.
12	3.7	7.1	10.6
13	7.2	10.7	14.2
14	10.5	14.1	17.7
15	13.7	17.3	21.0
16	16.7	20.4	24.2
17	19.6	23.4	27.2
18	22.3	26.2	30.1
19	24.9	28.9	32.9
20	27.4	31.5	35.5
21	29.8	34.0	38.1
22	32.1	36.3	40.5
23	34.3	38.6	42.9
24	36.4	40.7	45.1
25	38.4	42.8	47.2
26	40.3	44.8	49.3
27	42.1	46.7	51.3
28	43.9	48.5	53.2
29	45.5	50.2	55.0
30	47.1	51.9	56.7
31	48.6	53.5	58.4
32	50.0	55.0	59.9
33	51.4	56.4	61.5
34	52.7	57.8	62.9
35	53.9	59.1	64.3
36	55.1	60.3	65.6
37	56.2	61.5	66.8
38	57.2	62.6	68.0
39	58.2	63.7	69.2
40	59.1	64.7	70.3
41	60.0	65.6	71.3
42	60.8	66.5	72.2

1-2-112 Humerus Length (HL) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$HUM = -1{,}624 + 0{,}076315 \times GA + 0{,}01683 \times GA^2 - 0{,}00056212 \times GA^3 + 5{,}5666 \times GA^4 \times 10^6$$

Input Unit: w (weeks)
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	HL (cm)		
	5%	50%	95%
12	0.40	0.90	1.30
13	0.70	1.10	1.50
14	1.00	1.40	1.80
15	1.30	1.70	2.10
16	1.60	2.00	2.40
17	1.80	2.20	2.70
18	2.10	2.50	2.90
19	2.40	2.80	3.20
20	2.60	3.00	3.40
21	2.90	3.30	3.70
22	3.10	3.50	3.90
23	3.30	3.80	4.20
24	3.60	4.00	4.40
25	3.80	4.20	4.60
26	4.00	4.40	4.80
27	4.20	4.60	5.00
28	4.40	4.80	5.20
29	4.60	5.00	5.40
30	4.70	5.10	5.60
31	4.90	5.30	5.70
32	5.10	5.50	5.90
33	5.20	5.60	6.00
34	5.40	5.80	6.20
35	5.50	5.90	6.30
36	5.60	6.10	6.50
37	5.80	6.20	6.60
38	5.90	6.30	6.70
39	6.10	6.50	6.90
40	6.20	6.60	7.00

1-2-113 Humerus Length (HL) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	HL (cm)			GA (weeks)	HL (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.50	0.80	1.10	27.5	4.40	4.70	5.10
13.0	0.70	1.00	1.30	28.0	4.50	4.80	5.20
13.5	0.90	1.20	1.50	28.5	4.50	4.90	5.30
14.0	1.00	1.30	1.70	29.0	4.60	5.00	5.40
14.5	1.20	1.50	1.80	29.5	4.70	5.10	5.50
15.0	1.40	1.70	2.00	30.0	4.80	5.20	5.60
15.5	1.50	1.80	2.20	30.5	4.90	5.30	5.70
16.0	1.70	2.00	2.30	31.0	5.00	5.40	5.80
16.5	1.80	2.10	2.50	31.5	5.10	5.50	5.90
17.0	2.00	2.30	2.60	32.0	5.10	5.50	6.00
17.5	2.10	2.40	2.80	32.5	5.20	5.60	6.00
18.0	2.20	2.60	2.90	33.0	5.30	5.70	6.10
18.5	2.40	2.70	3.00	33.5	5.40	5.80	6.20
19.0	2.50	2.80	3.20	34.0	5.40	5.90	6.30
19.5	2.60	3.00	3.30	34.5	5.50	5.90	6.30
20.0	2.70	3.10	3.40	35.0	5.60	6.00	6.40
20.5	2.90	3.20	3.60	35.5	5.60	6.10	6.50
21.0	3.00	3.30	3.70	36.0	5.70	6.10	6.60
21.5	3.10	3.50	3.80	36.5	5.80	6.20	6.60
22.0	3.20	3.60	3.90	37.0	5.80	6.30	6.70
22.5	3.30	3.70	4.00	37.5	5.90	6.30	6.80
23.0	3.40	3.80	4.20	38.0	5.90	6.40	6.80
23.5	3.60	3.90	4.30	38.5	6.00	6.40	6.90
24.0	3.70	4.00	4.40	39.0	6.00	6.50	6.90
24.5	3.80	4.10	4.50	39.5	6.10	6.50	7.00
25.0	3.90	4.20	4.60	40.0	6.10	6.60	7.00
25.5	4.00	4.30	4.70	40.5	6.10	6.60	7.10
26.0	4.10	4.50	4.80	41.0	6.20	6.60	7.10
26.5	4.20	4.60	4.90	41.5	6.20	6.70	7.10
27.0	4.30	4.70	5.00				

1-2-114 Humerus Length (HL) OSAKA

Reference: Perinatal care Vol. 9 No. 5

GA	HL (cm)		GA	HL (cm)		GA	HL (cm)		GA	HL (cm)		GA	HL (cm)	
(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD	(w+d)	mean	±1.5SD
13w0d	1.01	0.30	18w3d	2.52	0.33	23w6d	3.79	0.36	29w2d	4.83	0.39	34w5d	5.62	0.41
13w1d	1.05	0.30	18w4d	2.56	0.33	24w0d	3.82	0.36	29w3d	4.85	0.39	34w6d	5.64	0.41
13w2d	1.09	0.30	18w5d	2.59	0.33	24w1d	3.85	0.36	29w4d	4.87	0.39	35w0d	5.65	0.42
13w3d	1.14	0.30	18w6d	2.63	0.33	24w2d	3.88	0.36	29w5d	4.90	0.39	35w1d	5.67	0.42
13w4d	1.18	0.30	19w0d	2.67	0.33	24w3d	3.91	0.36	29w6d	4.92	0.39	35w2d	5.69	0.42
13w5d	1.22	0.30	19w1d	2.70	0.33	24w4d	3.94	0.36	30w0d	4.94	0.39	35w3d	5.71	0.42
13w6d	1.26	0.32	19w2d	2.74	0.33	24w5d	3.97	0.36	30w1d	4.97	0.39	35w4d	5.72	0.42
14w0d	1.31	0.32	19w3d	2.77	0.33	24w6d	4.00	0.36	30w2d	4.99	0.39	35w5d	5.74	0.42
14w1d	1.35	0.32	19w4d	2.81	0.33	25w0d	4.03	0.36	30w3d	5.01	0.39	35w6d	5.76	0.42
14w2d	1.39	0.32	19w5d	2.84	0.33	25w1d	4.06	0.36	30w4d	5.04	0.39	36w0d	5.77	0.42
14w3d	1.43	0.32	19w6d	2.88	0.35	25w2d	4.09	0.36	30w5d	5.06	0.39	36w1d	5.79	0.42
14w4d	1.47	0.32	20w0d	2.91	0.35	25w3d	4.12	0.36	30w6d	5.08	0.39	36w2d	5.80	0.42
14w5d	1.51	0.32	20w1d	2.95	0.35	25w4d	4.14	0.36	31w0d	5.10	0.39	36w3d	5.82	0.42
14w6d	1.55	0.32	20w2d	2.98	0.35	25w5d	4.17	0.36	31w1d	5.12	0.39	36w4d	5.84	0.42
15w0d	1.59	0.32	20w3d	3.02	0.35	25w6d	4.20	0.36	31w2d	5.15	0.39	36w5d	5.85	0.42
15w1d	1.63	0.32	20w4d	3.05	0.35	26w0d	4.23	0.38	31w3d	5.17	0.39	36w6d	5.87	0.42
15w2d	1.67	0.32	20w5d	3.09	0.35	26w1d	4.26	0.38	31w4d	5.19	0.39	37w0d	5.88	0.42
15w3d	1.71	0.32	20w6d	3.12	0.35	26w2d	4.28	0.38	31w5d	5.21	0.39	37w1d	5.90	0.42
15w4d	1.75	0.32	21w0d	3.15	0.35	26w3d	4.31	0.38	31w6d	5.23	0.39	37w2d	5.91	0.42
15w5d	1.79	0.32	21w1d	3.19	0.35	26w4d	4.34	0.38	32w0d	5.25	0.41	37w3d	5.93	0.42
15w6d	1.83	0.32	21w2d	3.22	0.35	26w5d	4.37	0.38	32w1d	5.27	0.41	37w4d	5.94	0.42
16w0d	1.87	0.32	21w3d	3.25	0.35	26w6d	4.39	0.38	32w2d	5.29	0.41	37w5d	5.95	0.42
16w1d	1.91	0.32	21w4d	3.29	0.35	27w0d	4.42	0.38	32w3d	5.31	0.41	37w6d	5.97	0.42
16w2d	1.95	0.32	21w5d	3.32	0.35	27w1d	4.45	0.38	32w4d	5.33	0.41	38w0d	5.98	0.44
16w3d	1.99	0.32	21w6d	3.35	0.35	27w2d	4.47	0.38	32w5d	5.35	0.41	38w1d	6.00	0.44
16w4d	2.03	0.32	22w0d	3.38	0.35	27w3d	4.50	0.38	32w6d	5.37	0.41	38w2d	6.01	0.44
16w5d	2.07	0.32	22w1d	3.42	0.35	27w4d	4.53	0.38	33w0d	5.39	0.41	38w3d	6.02	0.44
16w6d	2.11	0.33	22w2d	3.45	0.35	27w5d	4.55	0.38	33w1d	5.41	0.41	38w4d	6.04	0.44
17w0d	2.15	0.33	22w3d	3.48	0.35	27w6d	4.58	0.38	33w2d	5.43	0.41	38w5d	6.05	0.44
17w1d	2.18	0.33	22w4d	3.51	0.35	28w0d	4.60	0.38	33w3d	5.45	0.41	38w6d	6.06	0.44
17w2d	2.22	0.33	22w5d	3.54	0.35	28w1d	4.63	0.38	33w4d	5.47	0.41	39w0d	6.08	0.44
17w3d	2.26	0.33	22w6d	3.58	0.36	28w2d	4.65	0.38	33w5d	5.49	0.41	39w1d	6.09	0.44
17w4d	2.30	0.33	23w0d	3.61	0.36	28w3d	4.68	0.38	33w6d	5.51	0.41	39w2d	6.10	0.44
17w5d	2.34	0.33	23w1d	3.64	0.36	28w4d	4.70	0.38	34w0d	5.53	0.41	39w3d	6.11	0.44
17w6d	2.37	0.33	23w2d	3.67	0.36	28w5d	4.73	0.38	34w1d	5.55	0.41	39w4d	6.13	0.44
18w0d	2.41	0.33	23w3d	3.70	0.36	28w6d	4.75	0.38	34w2d	5.57	0.41	39w5d	6.14	0.44
18w1d	2.45	0.33	23w4d	3.73	0.36	29w0d	4.78	0.39	34w3d	5.58	0.41	39w6d	6.15	0.44
18w2d	2.48	0.33	23w5d	3.76	0.36	29w1d	4.80	0.39	34w4d	5.60	0.41	40w0d	6.16	0.44

1-2-115 Humerus Length (HL) SIRIRAJ

Reference: Sunsaneevithayakul P. Charts of Thai fetal biometries: Upper Extremities. Siriraj Hosp Gaz 2000; 52: 407-409

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 41.0 weeks

GA (weeks)	HL (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	5.24	7.21	9.17
13	8.02	10.00	11.98
14	10.76	12.75	14.75
15	13.45	15.46	17.47
16	16.10	18.13	20.16
17	18.69	20.74	22.79
18	21.23	23.30	25.37
19	23.71	25.80	27.89
20	26.13	28.24	30.36
21	28.48	30.62	32.76
22	30.77	32.94	35.10
23	32.99	35.18	37.38
24	35.13	37.36	39.58
25	37.20	39.45	41.70
26	39.19	41.47	43.75
27	41.09	43.41	45.72
28	42.91	45.26	47.61
29	44.64	47.03	49.41
30	46.28	48.70	51.12
31	47.82	50.28	52.73
32	49.27	51.76	54.25
33	50.61	53.14	55.67
34	51.85	54.42	56.99
35	52.98	55.59	58.20
36	53.99	56.65	59.31
37	54.90	57.60	60.30
38	55.68	58.43	61.17
39	56.35	59.14	61.93
40	56.89	59.73	62.57
41	57.31	60.19	63.08

1-2-116 Length of Vertebra (LV) TOKYO

Reference: Norio Shinozuka, Takashi Okai, Masahiko Mizuno Issued by Shindan & Tiryo Sya Tokyo University, School of Medicine, OB/GYN dept. "How to interpret OB/GYN ultrasound measurement data"; 80. Fetal Measurement Obstetrics & Gynecology Chapter 56 Separate volume; 1989, Oct. 27th Publication

Table values are calculated using the following formulas:

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95%	$LV = 1{,}098 \cdot GA - 1{,}719 \bullet GA^2 \bullet 10^{-3} - 80{,}32$
50%	$LV = 1{,}575 \cdot GA + 5{,}150 \cdot GA^2 \bullet 10^{-3} + 6{,}772 \cdot GA^{-6} - 101{,}22$
5%	$LV = 3{,}715 \cdot GA \bullet 10^{-1} - 1{,}042 \bullet GA^2 \bullet 10^{-4} - 5{,}42$

GA (days)	LV (mm)			GA (days)	LV (mm)			GA (days)	LV (mm)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
154	41.0	43.9	48.0	199	53.6	61.6	70.1	244	65.8	74.8	85.2
155	41.3	44.4	48.6	200	53.9	62.0	70.5	245	66.1	75.1	85.5
156	41.6	44.9	49.1	201	54.2	62.3	70.9	246	66.4	75.4	85.8
157	41.9	45.3	49.7	202	54.5	62.6	71.3	247	66.6	75.7	86.0
158	42.1	45.8	50.3	203	54.7	62.9	71.7	248	66.9	75.9	86.3
159	42.4	46.2	50.8	204	55.0	63.2	72.1	249	67.2	76.2	86.5
160	42.7	46.7	51.4	205	55.3	63.6	72.5	250	67.4	76.5	86.7
161	43.0	47.1	51.9	206	55.6	63.9	72.9	251	67.7	76.7	87.0
162	43.3	47.6	52.4	207	55.8	64.2	73.3	252	68.0	77.0	87.2
163	43.6	48.0	53.0	208	56.1	64.5	73.7	253	68.2	77.3	87.4
164	43.8	48.4	53.5	209	56.4	64.8	74.1	254	68.5	77.5	87.7
165	44.1	48.9	54.1	210	56.7	65.1	74.5	255	68.8	77.8	87.9
166	44.4	49.3	54.6	211	56.9	65.4	74.8	256	69.0	78.1	88.1
167	44.7	49.7	55.1	212	57.2	65.7	75.2	257	69.3	78.4	88.3
168	45.0	50.1	55.6	213	57.5	66.0	75.6	258	69.6	78.6	88.5
169	45.3	50.6	56.1	214	57.8	66.3	75.9	259	69.8	78.9	88.7
170	45.5	51.0	56.7	215	58.0	66.6	76.3	260	70.1	79.2	89.0
171	45.8	51.4	57.2	216	58.3	66.9	76.6	261	70.3	79.4	89.2
172	46.1	51.8	57.7	217	58.6	67.2	77.0	262	70.6	79.7	89.4
173	46.4	52.2	58.2	218	58.8	67.5	77.4	263	70.9	80.0	89.6
174	46.7	52.6	58.7	219	59.1	67.8	77.7	264	71.1	80.2	89.7
175	47.0	53.0	59.2	220	59.4	68.1	78.0	265	71.4	80.5	89.9
176	47.2	53.4	59.7	221	59.7	68.4	78.4	266	71.7	80.8	90.1
177	47.5	53.8	60.2	222	59.9	68.7	78.7	267	71.9	81.1	90.3
178	47.8	54.1	60.7	223	60.2	69.0	79.0	268	72.2	81.3	90.5
179	48.1	54.5	61.1	224	60.5	69.3	79.4	269	72.4	81.6	90.7
180	48.4	54.9	61.6	225	60.7	69.6	79.7	270	72.7	81.9	90.8
181	48.6	55.3	62.1	226	61.0	69.9	80.0	271	73.0	82.2	91.0
182	48.9	55.7	62.6	227	61.3	70.1	80.3	272	73.2	82.4	91.2
183	49.2	56.0	63.0	228	61.6	70.4	80.7	273	73.5	82.7	91.3
184	49.5	56.4	63.5	229	61.8	70.7	81.0	274	73.8	83.0	91.5
185	49.8	56.8	64.0	230	62.1	71.0	81.3	275	74.0	83.3	91.6
186	50.0	57.1	64.4	231	62.4	71.3	81.6	276	74.3	83.6	91.8
187	50.3	57.5	64.9	232	62.6	71.5	81.9	277	74.5	83.8	91.9

GA (days)	LV (mm)			GA (days)	LV (mm)			GA (days)	LV (mm)		
	5%	50%	95%		5%	50%	95%		5%	50%	95%
188	50.6	57.9	65.3	233	62.9	71.8	82.2	278	74.8	84.1	92.1
189	50.9	58.2	65.8	234	63.2	72.1	82.5	279	75.1	84.4	92.2
190	51.1	58.6	66.2	235	63.4	72.4	82.8	280	75.3	84.7	92.4
191	51.4	58.9	66.7	236	63.7	72.7	83.1	281	75.6	85.0	92.5
192	51.7	59.3	67.1	237	64.0	72.9	83.4	282	75.8	85.2	92.6
193	52.0	59.6	67.6	238	64.2	73.2	83.6	283	76.1	85.5	92.7
194	52.3	59.9	68.0	239	64.5	73.5	83.9	284	76.3	85.8	92.9
195	52.5	60.3	68.4	240	64.8	73.8	84.2	285	76.6	86.1	93.0
196	52.8	60.6	68.9	241	65.0	74.0	84.5	286	76.9	86.4	93.1
197	53.1	61.0	69.3	242	65.3	74.3	84.7	287	77.1	86.7	93.2
198	53.4	61.3	69.7	243	65.6	74.6	85.0				

1-2-117 Left Lung Area PERALTA

Reference: Ultrasound Obst Gynecol 2005; 26: 718-724
published online in Wiley InterSience (www.interscience.wiley.com). DOI: 10.1002/uog.2651

Input Unit: w (weeks)
Output Unit: Lung area [mm²]
Valid Range: min: 12 week /max: 32week

GA	LA		
(week)	2.5%	50%	97.5%
12	20	36	51
13	26	47	68
14	36	62	89
15	49	82	114
16	65	104	144
17	83	130	177
18	103	158	213
19	125	188	252
20	148	220	293
21	172	254	335
22	196	288	380
23	220	323	425
24	244	358	471
25	268	392	517
26	290	426	563
27	310	459	609
28	328	491	653
29	344	521	697
30	358	548	738
31	368	573	777
32	374	594	814

1-2-118 Right Lung Area PERALTA

Reference: Ultrasound Obst Gynecol 2005; 26: 718-724
published online in Wiley InterSience (www.interscience.wiley.com). DOI: 10.1002/uog.2651

Input Unit: w (weeks)
Output Unit: Lung area [mm²]
Valid Range: min: 12 week /max: 32week

GA	LA		
(week)	2.5%	50%	97.5%
12	44	58	71
13	42	69	96
14	48	88	129
15	61	115	169
16	80	148	215
17	105	186	267
18	134	229	323
19	168	275	383
20	204	325	447
21	243	378	512
22	283	432	580
23	325	486	648
24	366	541	716
25	406	595	783
26	445	647	849
27	482	697	913
28	515	744	973
29	545	787	1029
30	569	825	1081
31	589	858	1127
32	602	885	1167

1-2-119 Middle Cerebral Artery Pulsatility Index (MCA PI) BAHLMAN

Reference: Bahlmann F, Reinhard I, Krummenauer F, Neubert S, Macchiella D, Wellek S. Blood flow velocity waveforms of the fetal middle cerebral artery in a normal population: reference values from 18 weeks to 42 weeks of gestation. J.Perinat.Med. 2002;30:490-501

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	MCA PI		
	5%	50%	95%
18	1.01	1.51	2.02
19	1.13	1.59	2.11
20	1.19	1.67	2.18
21	1.26	1.73	2.25
22	1.31	1.78	2.30
23	1.35	1.83	2.35
24	1.39	1.87	2.40
25	1.41	1.90	2.43
26	1.43	1.92	2.45
27	1.44	1.93	2.47
28	1.45	1.94	2.48
29	1.44	1.94	2.48
30	1.43	1.92	2.47
31	1.40	1.90	2.45
32	1.37	1.88	2.43
33	1.33	1.84	2.39
34	1.29	1.80	2.35
35	1.23	1.74	2.30
36	1.17	1.68	2.24
37	1.09	1.61	2.17
38	1.01	1.53	2.10
39	0.92	1.45	2.02
40	0.83	1.35	1.92
41	0.72	1.25	1.82
42	0.61	1.14	1.72

1-2-120 Middle Cerebral Artery Pulsatility Index (MCA PI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$MCAPI = -5{,}60 \times 10^{-3} \times GA^2 + 3{,}31 \times 10^{-1} \times GA - 2{,}39$
50%	$MCAPI = -5{,}20 \times 10^{-3} \times GA^2 + 3{,}10 \times 10^{-1} \times GA - 2{,}68$
5%	$MCAPI = -3{,}10 \times 10^{-3} \times GA^2 + 1{,}74 \times 10^{-1} \times GA - 9{,}69 \times 10^{-1}$

Input Unit: weeks

Output Unit: index

Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	MCAPI		
	5%	50%	95%
20	1.271	1.440	1.990
21	1.318	1.537	2.091
22	1.359	1.623	2.182
23	1.393	1.699	2.261
24	1.421	1.765	2.328
25	1.444	1.820	2.385
26	1.459	1.865	2.430
27	1.469	1.899	2.465
28	1.473	1.923	2.488
29	1.470	1.937	2.499
30	1.461	1.940	2.500
31	1.446	1.933	2.489
32	1.425	1.915	2.468
33	1.397	1.887	2.435
34	1.363	1.849	2.390
35	1.324	1.800	2.335
36	1.277	1.741	2.268
37	1.225	1.671	2.191
38	1.167	1.591	2.102
39	1.102	1.501	2.001
40	1.031	1.400	1.890
41	0.954	1.289	1.767

1-2-121 Middle Cerebral Artery Peek Velocity (MCA PS) MARI

Reference: Mari,G., et. al. "Noninvasive diagnosis by Doppler ultrasonography of fetal anemia due to maternal red-cell alloimmunization. Collaborative Group for Doppler Assessment of the Blood Velocity in Anemic Fetuses", N.Engl.J Med. Vol. 342 No. 1, 2000, pages 9-14

Input Unit: weeks
Output Unit: cm/sec
Range: 18 ... 40 weeks

GA (weeks)	MCA PS		
	Mild (1.29 x Median)	Moderate (1.50 x Median)	Severe (1.55 x Median)
18	29.9	34.8	36.0
20	32.8	38.2	39.5
22	36.0	41.9	43.3
24	39.5	46.0	47.5
26	43.3	50.4	52.1
28	47.6	55.4	57.2
30	52.2	60.7	62.8
32	57.3	66.6	68.9
34	62.9	73.1	75.6
36	69.0	80.2	82.9
38	75.7	88.0	91.0
40	83.0	96.6	99.8

1-2-122 Middle Cerebral Artery Resistance Index (MCA RI) BAHLMAN

Reference: Bahlmann F, Reinhard I, Krummenauer F, Neubert S, Macchiella D, Wellek S. Blood flow velocity waveforms of the fetal middle cerebral artery in a normal population: reference values from 18 weeks to 42 weeks of gestation. J.Perinat.Med. 2002;30:490-501.

Input Unit: weeks
Output Unit: cm/sec
Range: 18 ... 40 weeks

GA	MCA RI		
(weeks)	5%	50%	95%
18	0.544	0.687	0.787
19	0.574	0.708	0.808
20	0.592	0.727	0.828
21	0.608	0.744	0.846
22	0.622	0.758	0.861
23	0.633	0.771	0.874
24	0.643	0.782	0.886
25	0.651	0.790	0.895
26	0.656	0.796	0.902
27	0.659	0.801	0.907
28	0.661	0.803	0.910
29	0.660	0.803	0.911
30	0.657	0.801	0.910
31	0.652	0.798	0.907
32	0.645	0.792	0.902
33	0.636	0.783	0.894
34	0.625	0.773	0.885
35	0.612	0.761	0.873
36	0.597	0.747	0.860
37	0.579	0.730	0.844
38	0.560	0.712	0.826
39	0.539	0.692	0.807
40	0.515	0.669	0.785
41	0.489	0.644	0.761
42	0.462	0.618	0.735

1-2-123 Middle Cerebral Artery Resistance Index (MCA RI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$MCARI = -7{,}00 \times 10^{-4} \times GA^2 + 4{,}09 \times 10^{-2} GA + 3{,}33 \times 10^{-1}$
50%	$MCARI = -9{,}00 \times 10^{-4} \times GA^2 + 5{,}40 \times 10^{-2} \times GA + 5{,}54 \times 10^{-2}$
5%	$MCARI = -9{,}00 \times 10^{-4} \times GA^2 + 5{,}06 \times 10^{-2} \times GA + 6{,}48 \times 10^{-2}$

Input Unit: weeks

Output Unit: index

Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	MCARI		
	5%	50%	95%
20	0.717	0.775	0.871
21	0.731	0.793	0.883
22	0.742	0.808	0.894
23	0.753	0.821	0.903
24	0.761	0.833	0.911
25	0.767	0.843	0.918
26	0.772	0.851	0.923
27	0.775	0.857	0.927
28	0.776	0.862	0.929
29	0.775	0.865	0.930
30	0.773	0.865	0.930
31	0.769	0.865	0.928
32	0.762	0.862	0.925
33	0.755	0.857	0.920
34	0.745	0.851	0.914
35	0.733	0.843	0.907
36	0.720	0.833	0.898
37	0.705	0.821	0.888
38	0.688	0.808	0.876
39	0.669	0.793	0.863
40	0.649	0.775	0.849
41	0.627	0.757	0.833

1-2-124 Middle Abdominal Diameter (MAD) EIK-NES

Reference: Eik-Nes SH, Jorgensen NP, Grottum P, Lokvik B "Normal range curves for the intrauterine growth of the fetal abdominal diameters" Submitted JCU

GA (Age)	MAD (cm)		
	-2SD	Mean	+2SD
20	3.81	4.55	5.35
21	4.10	4.85	5.60
22	4.30	5.15	5.90
23	4.60	5.45	6.25
24	4.90	5.75	6.60
25	5.20	6.10	6.90
26	5.55	6.50	7.40
27	5.90	6.90	7.85
28	6.25	7.30	8.30
29	6.65	7.65	8.70
30	7.00	8.00	9.05
31	7.35	8.35	9.40
32	7.70	8.70	9.75
33	8.05	9.00	10.05
34	8.35	9.35	10.35
35	8.65	9.65	10.65
36	8.90	9.90	10.90
37	9.15	10.15	11.15
38	9.40	10.40	11.40
39	9.65	10.65	11.65
40	9.85	10.85	11.80

1-2-125 Middle Abdominal Diameter (MAD) eSnurra

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: d(days)
Output Unit: mm
Min Range: 168 days
Max Range: 301 days

GA	MAD (mm)		GA	MAD (mm)		GA	MAD (mm)	
(d)	mean	±1SD	(d)	mean	±1SD	(d)	mean	±1SD
168	60.1	2.87	215	83.9	4.156	262	104.3	6.444
169	60.6	2.864	216	84.4	4.18	263	104.7	6.529
170	61	2.859	217	84.9	4.201	264	105	6.613
171	61.5	2.856	218	85.3	4.22	265	105.4	6.697
172	62	2.854	219	85.8	4.237	266	105.8	6.781
173	62.5	2.854	220	86.3	4.252	267	106.2	6.863
174	63	2.857	221	86.8	4.267	268	106.6	6.945
175	63.5	2.863	222	87.2	4.28	269	106.9	7.024
176	64	2.872	223	87.7	4.294	270	107.3	7.103
177	64.6	2.885	224	88.2	4.309	271	107.7	7.179
178	65.1	2.902	225	88.6	4.323	272	108	7.253
179	65.6	2.923	226	89.1	4.337	273	108.4	7.324
180	66.1	2.947	227	89.6	4.351	274	108.8	7.389
181	66.6	2.976	228	90	4.367	275	109.1	7.45
182	67.1	3.007	229	90.5	4.383	276	109.5	7.503
183	67.7	3.04	230	90.9	4.401	277	109.8	7.548
184	68.2	3.075	231	91.4	4.422	278	110.2	7.584
185	68.7	3.112	232	91.8	4.445	279	110.5	7.611
186	69.2	3.15	233	92.3	4.472	280	110.8	7.629
187	69.7	3.188	234	92.7	4.503	281	111.2	7.637
188	70.3	3.227	235	93.1	4.538	282	111.5	7.633
189	70.8	3.265	236	93.6	4.577	283	111.8	7.618
190	71.3	3.302	237	94	4.621	284	112.1	7.591
191	71.8	3.338	238	94.4	4.668	285	112.4	7.553
192	72.3	3.374	239	94.9	4.72	286	112.7	7.504
193	72.9	3.409	240	95.3	4.776	287	113	7.445
194	73.4	3.444	241	95.7	4.835	288	113.3	7.379
195	73.9	3.478	242	96.1	4.899	289	113.6	7.306
196	74.4	3.513	243	96.5	4.966	290	113.9	7.228
197	74.9	3.549	244	97	5.035	291	114.1	7.144
198	75.4	3.585	245	97.4	5.107	292	114.4	7.056
199	75.9	3.622	246	97.8	5.18	293	114.7	6.963
200	76.4	3.66	247	98.2	5.255	294	114.9	6.866
201	76.9	3.698	248	98.6	5.331	295	115.2	6.763
202	77.4	3.734	249	99	5.407	296	115.4	6.655
203	77.9	3.771	250	99.4	5.484	297	115.7	6.542

GA (d)	MAD (mm)		GA (d)	MAD (mm)		GA (d)	MAD (mm)	
	mean	±1SD		mean	±1SD		mean	±1SD
204	78.4	3.806	251	99.8	5.562	298	115.9	6.423
205	78.9	3.84	252	100.3	5.639	299	116.1	6.298
206	79.4	3.874	253	100.7	5.717	300	116.4	6.167
207	79.9	3.908	254	101.1	5.795	301	116.6	6.032
208	80.4	3.942	255	101.5	5.873			
209	80.9	3.975	256	101.9	5.952			
210	81.4	4.008	257	102.3	6.032			
211	81.9	4.04	258	102.7	6.112			
212	82.4	4.072	259	103.1	6.194			
213	82.9	4.102	260	103.5	6.276			
214	83.4	4.13	261	103.9	6.36			

1-2-126 Abdominal Diameter (MAD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	MAD (cm)		
	5%	50%	95%
12	1.45	1.81	2.18
13	1.79	2.19	2.58
14	2.14	2.55	2.97
15	2.48	2.92	3.36
16	2.82	3.29	3.75
17	3.16	3.65	4.14
18	3.49	4.01	4.52
19	3.82	4.36	4.90
20	4.15	4.71	5.28
21	4.47	5.06	5.65
22	4.80	5.41	6.02
23	5.11	5.75	6.39
24	5.43	6.09	6.75
25	5.74	6.42	7.11
26	6.04	6.75	7.47
27	6.34	7.08	7.82
28	6.64	7.40	8.16
29	6.93	7.72	8.50
30	7.22	8.03	8.84
31	7.50	8.34	9.17
32	7.78	8.64	9.50
33	8.05	8.94	9.82
34	8.32	9.23	10.14
35	8.58	9.51	10.45
36	8.84	9.79	10.75
37	9.09	10.07	11.05
38	9.33	10.34	11.34
39	9.57	10.60	11.63
40	9.80	10.85	11.91
41	10.02	11.10	12.18
42	10.24	11.34	12.45

1-2-127 Mitral Valve E/A Ratio (MV E/A) HARADA

Reference: Barry B. Goldberg MD, John P. McGahan MD, Atlas of Ultrasound Measurements, Chapter 36, Table 36-3, Page 163
American Journal of Cardiology, Volume 79, Issue 2, Page 173-177

Input Unit: w (weeks)
Output Unit: Ratio
Min Range: 20 weeks
Max Range: 38 weeks

GA (weeks	MV E/A		
	2.5%	50%	97.5%
20	0.40	0.59	0.77
21	0.42	0.60	0.79
22	0.43	0.62	0.80
23	0.45	0.63	0.82
24	0.46	0.65	0.83
25	0.48	0.66	0.84
26	0.49	0.68	0.86
27	0.50	0.69	0.87
28	0.52	0.70	0.88
29	0.53	0.71	0.89
30	0.54	0.73	0.90
31	0.55	0.74	0.91
32	0.56	0.75	0.92
33	0.57	0.76	0.93
34	0.58	0.76	0.93
35	0.59	0.77	0.94
36	0.59	0.78	0.95
37	0.60	0.79	0.95
38	0.61	0.79	0.96

1-2-128 Nasal Bone Length (NBL) BUNDUKI

Reference: Bunduki,V., Ruano,R.; Miguelez,J., Yoshizaki,C.T., Kahhale,S., Zugaib,M.," Fetal nasal bone length: reference range and clinical application in ultrasound screening for trisomy 21", Ultrasound Obstet Gynecol., Vol. 21 No. 2, 2003, pages 156-160

50%: $NBL = 0{,}27 \times GA + 1{,}41$

Input Unit: weeks

Output Unit: mm

Range: 16 ... 24 weeks

GA (weeks)	NBL (mm)		
	-1SD	Mean	+1SD
16	4.60	5.73	6.86
17	4.87	6.00	7.13
18	5.14	6.27	7.40
19	5.41	6.54	7.67
20	5.68	6.81	7.94
21	5.95	7.08	8.21
22	6.22	7.35	8.48
23	6.49	7.62	8.75
24	6.76	7.89	9.02

1-2-129 Nasal Bone Length (NBL) SONEK

Reference: Sonek.J.D., McKenna,D., Webb,D., Croom,C., Nicolaides,K.," Nasal bone length throughout gestation: normal ranges based on 3537 fetal ultrasound measurements", Ultrasound Obstet Gynecol., Vol. 21 No. 2, 2003, pages 152-155.

Input Unit: weeks

Output Unit: mm

Range: 11 ... 40 weeks

GA (weeks)	NBL		
	5%	50%	95%
11	1.4	2.3	3.3
12	1.8	2.8.	4.2
13	2.3	3.1	4.6
14	2.5	3.8	5.3
15	3.0	4.3	5.7
16	3.4	4.7	6.2
17	4.0	5.3	6.6
18	4.3	5.7	7.0
19	5.0	6.3	7.9
20	5.2	6.7	8.3
21	5.6	7.1	9.0
22	5.8	7.5	9.3
23	6.4	7.9	9.6
24	6.8	8.3	10.0
25	6.5	8.5	10.7
26	7.4	8.9	10.9
27	7.5	9.2	11.3
28	7.6	9.8	12.1
29	7.7	9.8	11.8
30	7.9	10.0	12.6
31	8.2	10.4	12.6
32	8.6	10.5	13.6
33	8.7	10.8	12.8
34	9.1	10.9	12.8
35	8.5	11.0	14.1
36	7.8	10.8	12.8
37	8.7	11.4	14.5
38	9.3	11.7	15.7
39	9.2	10.9	14.0
40	10.4	12.1	14.5

1-2-130 Occipital Frontal Diameter (OFD) ASUM

Reference: "Ultrasonic fetal Measurement Standards for an Australian Population", compiled by Susan Campbell Westerway Faculty of Health Sciences University of Sydney.
http://www.asum.com.au/open/home.htm
Date: December 2003

GA (week)	OFD (cm)		GA (week)	OFD (cm)	
	mean	±2SD		mean	±2SD
11	2.10	0.20	27	8.60	0.45
12	2.40	0.20	28	9.50	0.50
13	2.90	0.30	29	9.70	0.55
14	3.40	0.30	30	9.80	0.55
15	3.80	0.30	31	10.10	0.50
16	4.60	0.30	32	10.20	0.50
17	5.00	0.30	33	10.70	0.55
18	5.40	0.35	34	10.80	0.55
19	5.70	0.35	35	10.90	0.55
20	6.10	0.35	36	11.20	0.55
21	6.30	0.40	37	11.30	0.60
22	6.80	0.35	38	11.60	0.55
23	7.60	0.40	39	11.90	0.60
24	7.90	0.40	40	12.00	0.60
25	8.20	0.45	41	12.20	0.60
26	8.40	0.45			

1-2-131 Occipital Frontal Diameter (OFD) CHITTY

Reference: Chitty,L.S., Altman,D.G., Henderson,A., Campbell,S.," Charts of fetal size: 2. Head measurements" Br.J Obstet Gynaecol., Vol. 101 No. 1, 1994, pages 35-43

GA (Week)	OFD (cm)		
	-1SD	Mean	+1SD
12	23.8	26.2	28.6
13	26.9	29.7	32.5
14	33.2	35.8	38.4
15	35.6	38.6	41.6
16	41.6	43.9	46.2
17	43.6	47.2	50.8
18	49.4	52.9	56.4
19	55.0	58.1	61.2
20	57.0	61.0	65.0
21	63.6	66.6	69.6
22	65.2	68.8	72.4
23	69.0	73.2	77.4
24	75.7	79.0	82.3
25	78.9	82.2	85.5
26	82.3	86.8	91.3
27	87.0	90.8	94.6
28	91.2	94.8	98.4
29	96.1	99.6	103.1
30	98.0	101.6	105.2
31	100.9	105.5	110.1
32	102.0	106.8	111.6
33	105.0	109.8	114.6
34	106.3	110.9	115.5
35	106.5	112.4	118.3
36	111.1	117.2	123.3
37	112.6	116.7	120.8
38	108.0	117.4	126.8
39	113.4	118.0	122.6
40	111.9	120.7	129.5
41	117.0	124.1	131.2
42	114.3	120.6	126.9

1-2-132 Occipital Frontal Diameter (OFD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p.433

GA (weeks)	OFD (cm)		
	5%	50%	95%
14	3.10	3.10	3.10
15	3.20	3.80	4.20
16	3.60	4.10	4.60
17	4.10	4.60	5.10
18	4.50	5.00	5.50
19	4.90	5.40	6.00
20	5.30	5.80	6.40
21	5.70	6.30	6.90
22	6.10	6.70	7.30
23	6.50	7.20	7.80
24	6.90	7.60	8.20
25	7.30	8.00	8.70
26	7.60	8.40	9.10
27	8.00	8.80	9.50
28	8.30	9.10	9.80
29	8.70	9.50	10.10
30	8.90	9.80	10.50
31	9.20	10.00	10.70
32	9.50	10.30	11.00
33	9.70	10.50	11.20
34	9.90	10.70	11.50
35	10.10	10.90	11.70
36	10.30	11.10	11.80
37	10.40	11.20	12.00
38	10.50	11.30	12.10
39	10.60	11.40	12.30
40	10.70	11.50	12.40

1-2-133 Occipital Frontal Diameter (OFD) JEANTY

Reference: Jeanty P., Cousaert E., Hobbins J.C., Tack B., Bracken M., Cantraine F
"A longitudinal study of fetal head biometry"
American Journal of Perinatology; Volume 1; Number 2; January 1984

$$OFD = -2{,}6934 + 0{,}37701 \times GA + 0{,}0046395 \times GA^2 - 0{,}00012939 \times GA^3$$

Input Unit: w (weeks)

Output Unit: cm

Min Range: 10.0 weeks

Max Range: 40.0 weeks

GA (weeks)	OFD (cm)		
	5%	50%	95%
10	0.70	1.40	2.10
11	1.10	1.80	2.50
12	1.60	2.30	3.00
13	2.00	2.70	3.40
14	2.40	3.10	3.80
15	2.90	3.60	4.30
16	3.30	4.00	4.70
17	3.70	4.40	5.10
18	4.10	4.80	5.50
19	4.60	5.30	6.00
20	5.00	5.70	6.40
21	5.40	6.10	6.80
22	5.80	6.50	7.20
23	6.20	6.90	7.60
24	6.50	7.20	7.90
25	6.90	7.60	8.30
26	7.30	8.00	8.70
27	7.60	8.30	9.00
28	8.00	8.70	9.40
29	8.30	9.00	9.70
30	8.60	9.30	10.00
31	8.90	9.60	10.30
32	9.20	9.90	10.60
33	9.50	10.20	10.80
34	9.70	10.40	11.10
35	9.90	10.60	11.30
36	10.20	10.90	11.60
37	10.40	11.10	11.80
38	10.50	11.20	11.90
39	10.70	11.40	12.10
40	10.80	11.50	12.20

1-2-134 Occipital Frontal Diameter (OFD) KURMANAVICIUS

Reference: Standard-Tabellen und Kurven für Ultraschall-/Dopplersonografie, Dept. Frauenheilkunde Klinik und Poliklinik für Geburtshilfe; Copyright (1997) J. Kurmanavicius et al Prof. Dr. A. Huch

GA (weeks)	OFD (cm)		
	5%	50%	95%
12	2.02	2.46	2.91
13	2.49	2.96	3.43
14	2.96	3.45	3.94
15	3.43	3.93	4.44
16	3.88	4.41	4.94
17	4.32	4.87	5.42
18	4.76	5.32	5.89
19	5.18	5.77	6.35
20	5.59	6.20	6.81
21	5.99	6.62	7.24
22	6.37	7.02	7.67
23	6.75	7.41	8.08
24	7.11	7.79	8.48
25	7.45	8.16	8.87
26	7.78	8.51	9.24
27	8.09	8.84	9.59
28	8.39	9.16	9.93
29	8.67	9.46	10.25
30	8.93	9.74	10.55
31	9.18	10.01	10.84
32	9.41	10.25	11.10
33	9.61	10.48	11.35
34	9.80	10.69	11.58
35	9.97	10.88	11.78
36	10.11	11.04	11.97
37	10.24	11.19	12.13
38	10.34	11.31	12.28
39	10.42	11.41	12.40
40	10.47	11.48	12.49
41	10.51	11.53	12.56
42	10.51	11.56	12.61

1-2-135 Occipital Frontal Diameter (OFD) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones" Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	OFD (cm)			GA (weeks)	OFD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	2.60	3.00	3.40	27.5	8.40	9.00	9.50
13.0	2.80	3.20	3.60	28.0	8.60	9.10	9.70
13.5	2.90	3.40	3.80	28.5	8.70	9.30	9.80
14.0	3.10	3.50	4.00	29.0	8.90	9.40	10.00
14.5	3.30	3.70	4.10	29.5	9.00	9.60	10.10
15.0	3.50	3.90	4.30	30.0	9.20	9.70	10.30
15.5	3.70	4.10	4.60	30.5	9.30	9.90	10.40
16.0	3.90	4.30	4.80	31.0	9.40	10.00	10.60
16.5	4.10	4.50	5.00	31.5	9.60	10.10	10.70
17.0	4.30	4.70	5.20	32.0	9.70	10.20	10.80
17.5	4.50	5.00	5.40	32.5	9.80	10.40	11.00
18.0	4.70	5.20	5.60	33.0	9.90	10.50	11.10
18.5	4.90	5.40	5.90	33.5	10.00	10.60	11.20
19.0	5.10	5.60	6.10	34.0	10.10	10.70	11.30
19.5	5.40	5.80	6.30	34.5	10.20	10.80	11.40
20.0	5.60	6.00	6.50	35.0	10.30	10.90	11.50
20.5	5.80	6.30	6.70	35.5	10.30	11.00	11.60
21.0	6.00	6.50	6.90	36.0	10.40	11.00	11.60
21.5	6.20	6.70	7.20	36.5	10.50	11.10	11.70
22.0	6.40	6.90	7.40	37.0	10.50	11.20	11.80
22.5	6.60	7.10	7.60	37.5	10.60	11.20	11.90
23.0	6.80	7.30	7.80	38.0	10.60	11.30	11.90
23.5	7.00	7.50	8.00	38.5	10.70	11.30	12.00
24.0	7.20	7.70	8.20	39.0	10.70	11.40	12.00
24.5	7.40	7.90	8.40	39.5	10.80	11.40	12.00
25.0	7.50	8.10	8.60	40.0	10.80	11.40	12.10
25.5	7.70	8.20	8.80	40.5	10.80	11.40	12.10
26.0	7.90	8.40	9.00	41.0	10.80	11.50	12.10
26.5	8.10	8.60	9.10	41.5	10.80	11.50	12.10
27.0	8.20	8.80	9.30				

1-2-136 Occipital Frontal Diameter (OFD) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	OFD (cm)		
	5th centile	Median	95th centile
14	3.50	3.90	4.20
15	3.90	4.20	4.60
16	4.20	4.60	5.00
17	4.60	5.00	5.40
18	5.00	5.40	5.90
19	5.40	5.80	6.30
20	5.70	6.20	6.80
21	6.10	6.70	7.20
22	6.50	7.10	7.70
23	6.90	7.50	8.20
24	7.30	7.90	8.60
25	7.70	8.30	9.00
26	8.10	8.70	9.50
27	8.40	9.10	9.90
28	8.70	9.50	10.30
29	9.10	9.80	10.70
30	9.40	10.20	11.00
31	9.60	10.50	11.30
32	9.90	10.70	11.60
33	10.10	11.00	11.90
34	10.30	11.20	12.10
35	10.50	11.30	12.30
36	10.60	11.50	12.40
37	10.70	11.60	12.50
38	10.70	11.60	12.60
39	10.70	11.60	12.60

1-2-137 Pulmonary Artery Peak Velocity (MainPA VMax) RIZZO

Reference: *Barry B. Goldberg MD, John P. McGahan MD, Atlas of Ultrasound Measurements, Chapter 36, Table 36-6, Page 169*
Am J Obstet Gynecol 1991; 165:876-882

Input Unit: w (weeks)
Output Unit: cm/sec
Min Range: 20 weeks
Max Range: 38 weeks

GA (Week)	MainPA Vmax (cm/sec)		
	2.5th centile	Median	97.5 th centile
20	23.0	53.0	80.0
21	24.0	54.0	81.0
22	25.0	56.0	82.0
23	27.0	57.0	84.0
24	28.0	58.0	85.0
25	29.0	59.0	86.0
26	30.0	61.0	87.0
27	31.0	62.0	89.0
28	32.0	63.0	90.0
29	34.0	64.0	91.0
30	35.0	65.0	92.0
31	36.0	67.0	93.0
32	37.0	68.0	95.0
33	38.0	69.0	96.0
34	39.0	70.0	97.0
35	41.0	72.0	98.0
36	42.0	73.0	100.0
37	43.0	74.0	101.0
38	44.0	78.0	102.0

1-2-138 Radius (RAD) CHITTY

Reference: Charts of fetal size: limb bones Lyn S. Chitty, Douglas G. Altman BJOG: an International Journal of Obstetrics and Gynaecology August 2002, Vol. 109, pp. 919–929

Input Unit: w (weeks)
Output Unit: cm/sec
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (weeks)	RAD (mm)		
	3th Cent.	50th Cent.	97th Cent.
12	2.2	5.5	8.8
13	4.8	8.2	11.6
14	7.6	11.0	14.5
15	10.3	13.9	17.4
16	13.0	16.7	20.3
17	15.6	19.3	23.1
18	18.1	21.9	25.7
19	20.4	24.4	28.3
20	22.7	26.7	30.7
21	24.8	28.9	32.9
22	26.8	30.9	35.1
23	28.6	32.9	37.1
24	30.4	34.7	39.1
25	32.0	36.5	40.9
26	33.6	38.1	42.6
27	35.1	39.7	44.3
28	36.5	41.2	45.8
29	37.8	42.6	47.3
30	39.0	43.9	48.7
31	40.2	45.1	50.1
32	41.3	46.4	51.4
33	42.4	47.5	52.6
34	43.4	48.6	53.8
35	44.3	49.6	54.9
36	45.2	50.6	56.0
37	46.1	51.6	57.0
38	46.9	52.5	58.0
39	47.7	53.3	59.0
40	48.4	54.2	59.9
41	49.1	55.0	60.8
42	49.8	55.7	61.6

1-2-139 Radius (RAD) JEANTY

Reference: Jeanty,P., "Fetal Limb Biometry" Radiology, Vol. 147 No. 2, 1983, pages 601-602

Note: The table listed here is calculted by the formula

$$RAD = 32{,}018781 + 3{,}800812 \cdot GA - 0{,}043570568 \bullet GA^2$$

(This formula was given to us by Dr. Jeanty personally, and the results are more accurate than the rounded results listed in the publication referenced above.)

GA (weeks)	RAD (mm)		
	5%	50	95%
11	4.5	4.5	4.5
12	7.3	7.3	7.3
13	4.4	10.0	15.6
14	7.1	12.7	18.3
15	9.6	15.2	20.8
16	12.0	17.6	23.2
17	14.4	20.0	25.6
18	16.7	22.3	27.9
19	18.9	24.5	30.1
20	21.0	26.6	32.2
21	23.0	28.6	34.2
22	24.9	30.5	36.1
23	26.8	32.4	38.0
24	28.5	34.1	39.7
25	30.2	35.8	41.4
26	31.7	37.3	42.9
27	33.2	38.8	44.4
28	34.6	40.2	45.8
29	36.0	41.6	47.2
30	37.2	42.8	48.4
31	38.3	43.9	49.5
32	39.4	45.0	50.6
33	40.4	46.0	51.6
34	41.2	46.8	52.4
35	42.0	47.6	53.2
36	42.7	48.3	53.9
37	43.4	49.0	54.6
38	43.9	49.5	55.1
39	44.3	49.9	55.5
40	44.7	50.3	55.9

1-2-140 Radius (RAD) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	RAD (cm)			GA (weeks)	RAD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.10	0.40	0.70	27.5	3.60	3.90	4.30
13.0	0.30	0.60	0.90	28.0	3.60	4.00	4.40
13.5	0.50	0.80	1.10	28.5	3.70	4.10	4.50
14.0	0.60	1.00	1.30	29.0	3.80	4.20	4.50
14.5	0.80	1.10	1.40	29.5	3.90	4.20	4.60
15.0	1.00	1.30	1.60	30.0	3.90	4.30	4.70
15.5	1.10	1.40	1.70	30.5	4.00	4.40	4.80
16.0	1.20	1.60	1.90	31.0	4.10	4.40	4.80
16.5	1.40	1.70	2.00	31.5	4.10	4.50	4.90
17.0	1.50	1.80	2.20	32.0	4.20	4.60	5.00
17.5	1.60	2.00	2.30	32.5	4.30	4.60	5.00
18.0	1.70	2.10	2.40	33.0	4.30	4.70	5.10
18.5	1.90	2.20	2.50	33.5	4.40	4.80	5.20
19.0	2.00	2.30	2.60	34.0	4.40	4.80	5.20
19.5	2.10	2.40	2.80	34.5	4.50	4.90	5.30
20.0	2.20	2.50	2.90	35.0	4.50	4.90	5.30
20.5	2.30	2.60	3.00	35.5	4.60	5.00	5.40
21.0	2.40	2.80	3.10	36.0	4.60	5.00	5.40
21.5	2.50	2.90	3.20	36.5	4.70	5.10	5.50
22.0	2.60	3.00	3.30	37.0	4.70	5.10	5.50
22.5	2.70	3.10	3.40	37.5	4.80	5.20	5.60
23.0	2.80	3.20	3.50	38.0	4.80	5.20	5.60
23.5	2.90	3.20	3.60	38.5	4.80	5.20	5.70
24.0	3.00	3.30	3.70	39.0	4.90	5.30	5.70
24.5	3.10	3.40	3.80	39.5	4.90	5.30	5.70
25.0	3.20	3.50	3.90	40.0	4.90	5.30	5.80
25.5	3.20	3.60	4.00	40.5	4.90	5.40	5.80
26.0	3.30	3.70	4.10	41.0	5.00	5.40	5.80
26.5	3.40	3.80	4.10	41.5	5.00	5.40	5.80
27.0	3.50	3.90	4.20				

1-2-141 Radius (RAD) SIRIRAJ

Reference: Sunsaneevithayakul P, Sutanthavibul A, Titapant V, Boriboonhirunsarn D, Siwadune T. Charts of Thai Fetal Biometry: Upper Extremities. Siriraj Medical Journal 2000 Jun;52(06):401.

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 41.0 weeks

GA (weeks)	RAD (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	2.49	4.16	5.84
13	5.19	6.91	8.63
14	7.80	9.58	11.35
15	10.34	12.16	13.99
16	12.80	14.67	16.54
17	15.17	17.09	19.02
18	17.47	19.44	21.41
19	19.68	21.70	23.72
20	21.82	23.89	25.96
21	23.86	25.98	28.10
22	25.84	28.01	30.18
23	27.74	29.96	32.18
24	29.55	31.82	34.09
25	31.28	33.60	35.92
26	32.94	35.30	37.67
27	34.51	36.93	39.34
28	36.00	38.47	40.94
29	37.41	39.93	42.45
30	38.74	41.31	43.88
31	39.99	42.61	45.23
32	41.16	43.83	46.50
33	42.25	44.97	47.68
34	43.26	46.03	48.79
35	44.19	47.01	49.82
36	45.04	47.91	50.77
37	45.81	48.72	51.64
38	46.50	49.46	52.43
39	47.11	50.12	53.13
40	47.63	50.70	53.76
41	48.08	51.19	54.31

1-2-142 Thoracic Circumference (TC) CHITKARA

Reference: Am J Obstet Gynecol; 1987 May; 156(5):1069-745

GA (weeks	TC (cm)		
	5%	50%	95%
16	6.4	9.1	11.9
17	7.3	10.0	12.8
18	8.2	11.0	13.7
19	9.1	11.9	14.6
20	10.0	12.8	15.5
21	11.0	13.7	16.4
22	11.9	14.6	17.3
23	12.8	15.5	18.2
24	13.7	16.4	19.1
25	14.6	17.3	20.0
26	15.5	18.2	21.0
27	16.4	19.1	21.9
28	17.3	20.0	22.8
29	18.2	21.0	23.7
30	19.1	21.9	24.6
31	20.0	22.8	25.5
32	20.9	23.7	26.4
33	21.8	24.6	27.3
34	22.8	25.5	28.2
35	23.7	26.4	29.1
36	24.6	27.3	30.0
37	25.5	28.2	30.9
38	26.4	29.1	31.9
39	27.3	30.0	32.8
40	28.2	30.9	33.7

1-2-143 Transverse Abdominal Diameter (TAD) CFEF

Reference: Créquat,J., Duyme,M., Brodaty,G.,"Biometry 2000. Fetal growth charts by the French College of fetal ultrasonography and the Inserm U 155", Gynécol Obstét Fertil, Vol. 28 No. 2, 2000, pages 435-445

Input Unit: GA [week]
Output Unit: Percentile [mm]
Min Range: 16 weeks
Max Range: 40 weeks

GA (Week)	TAD (mm)				
	3%	10%	50%	90%	97%
11	9.68	11.00	13.50	16.00	17.25
12	12.68	14.00	17.00	20.00	21.46
13	15.60	17.25	20.56	24.00	25.51
14	18.69	20.41	24.00	27.84	29.56
15	21.76	23.64	27.69	31.74	33.61
16	25.00	27.00	31.21	35.53	37.48
17	28.23	30.34	34.70	39.21	41.39
18	31.54	33.64	38.31	42.89	45.14
19	34.78	37.00	41.69	46.42	48.59
20	38.16	40.26	45.21	50.00	52.20
21	41.14	43.46	48.34	53.22	55.63
22	44.21	46.61	51.57	56.75	59.08
23	47.00	49.47	54.72	60.00	62.46
24	49.77	52.39	57.88	63.43	66.00
25	52.54	55.18	61.00	66.74	69.44
26	55.17	58.00	64.00	70.12	72.89
27	57.72	60.73	67.11	73.42	76.42
28	60.43	63.58	70.27	76.80	79.87
29	63.13	66.36	73.27	80.17	83.33
30	65.80	69.17	76.17	83.45	86.75
31	68.35	71.88	79.25	86.68	90.13
32	70.90	74.43	82.10	89.76	93.36
33	73.08	76.75	84.78	92.89	96.64
34	75.25	79.08	87.55	95.89	99.86
35	77.00	81.10	90.00	99.00	103.00
36	78.48	82.90	92.36	102.00	106.31
37	79.79	84.60	94.81	105.00	109.67
38	80.92	86.10	97.00	108.19	113.29
39	81.85	87.41	99.33	111.34	117.00
40	82.58	88.59	101.64	114.52	120.70
41	82.80	89.20	103.00	117.00	123.00

1-2-144 Transverse Abdominal Diameter (TAD) JACOT-GUILLARMOD

Reference: Jacot-Guillarmod M., Vial Y., Hohlfeld P., Courbes de Biomètrie, Lausanne CHUV 2003

Input Unit: w (weeks)
Output Unit: mm
Min Range: 15.0 weeks
Max Range: 41.0 weeks

GA	TAD (mm)		
(weeks)	5%	50%	95%
15	26.2	30.3	35.0
16	29.1	33.7	38.5
17	32.1	37.0	42.0
18	35.0	40.3	45.6
19	38.0	43.7	49.1
20	41.0	47.0	52.7
21	44.0	50.4	56.4
22	47.0	53.7	60.0
23	50.0	57.0	63.6
24	53.0	60.3	67.3
25	56.0	63.5	70.9
26	58.9	66.7	74.5
27	61.8	69.9	78.0
28	64.7	73.1	81.6
29	67.5	76.1	85.1
30	70.3	79.2	88.5
31	73.0	82.1	91.9
32	75.6	85.0	95.3
33	78.1	87.8	98.5
34	80.6	90.6	101.7
35	83.0	93.2	104.8
36	85.3	95.8	107.9
37	87.5	98.2	110.8
38	89.5	100.6	113.7
39	91.5	102.9	116.4
40	93.3	105.0	119.0
41	95.0	107.0	121.5

1-2-145 Transverse Abdominal Diameter (TAD) MERZ

Reference: Merz E., Wellek S
"Normal Fetal Development Profiles- A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	TAD (cm)			GA (weeks)	TAD (cm)		
	5%	50%	95%		5%	50%	95%
12.5	1.70	2.00	2.40	27.5	6.50	7.10	7.80
13.0	1.80	2.20	2.60	28.0	6.70	7.30	7.90
13.5	2.00	2.40	2.80	28.5	6.80	7.50	8.10
14.0	2.10	2.50	2.90	29.0	7.00	7.60	8.30
14.5	2.30	2.70	3.10	29.5	7.10	7.80	8.40
15.0	2.50	2.90	3.30	30.0	7.30	7.90	8.60
15.5	2.60	3.10	3.50	30.5	7.40	8.10	8.80
16.0	2.80	3.20	3.70	31.0	7.60	8.20	8.90
16.5	3.00	3.40	3.80	31.5	7.70	8.40	9.10
17.0	3.10	3.60	4.00	32.0	7.80	8.50	9.20
17.5	3.30	3.80	4.20	32.5	8.00	8.70	9.40
18.0	3.50	3.90	4.40	33.0	8.10	8.80	9.60
18.5	3.60	4.10	4.60	33.5	8.30	9.00	9.70
19.0	3.80	4.30	4.80	34.0	8.40	9.10	9.90
19.5	3.90	4.40	4.90	34.5	8.50	9.30	10.00
20.0	4.10	4.60	5.10	35.0	8.70	9.40	10.20
20.5	4.30	4.80	5.30	35.5	8.80	9.60	10.30
21.0	4.40	5.00	5.50	36.0	8.90	9.70	10.50
21.5	4.60	5.10	5.70	36.5	9.10	9.80	10.60
22.0	4.80	5.30	5.80	37.0	9.20	10.00	10.80
22.5	4.90	5.50	6.00	37.5	9.30	10.10	10.90
23.0	5.10	5.60	6.20	38.0	9.40	10.20	11.00
23.5	5.20	5.80	6.40	38.5	9.50	10.40	11.20
24.0	5.40	6.00	6.50	39.0	9.70	10.50	11.30
24.5	5.60	6.10	6.70	39.5	9.80	10.60	11.40
25.0	5.70	6.30	6.90	40.0	9.90	10.70	11.60
25.5	5.90	6.50	7.10	40.5	10.00	10.80	11.70
26.0	6.00	6.60	7.20	41.0	10.10	10.90	11.80
26.5	6.20	6.80	7.40	41.5	10.20	11.00	11.90
27.0	6.30	7.00	7.60				

1-2-146 Transverse Cerebellar Diameter (CEREB) GOLDSTEIN

Reference: Goldstein I.; Reece A.; Pilu G.; Bovicelli L.; Hobbins J.C "Cerebellar measurement with ultrasonography in the evaluation of fetal growth and development." Am J Obstet Gynecol; May 1987; 1065-1069

GA (weeks)	Cereb (cm)		
	10%	50%	90%
15	1.00	1.40	1.60
16	1.40	1.60	1.70
17	1.60	1.70	1.80
18	1.70	1.80	1.90
19	1.80	1.90	2.20
20	1.80	2.00	2.20
21	1.90	2.20	2.40
22	2.10	2.30	2.40
23	2.20	2.40	2.60
24	2.20	2.50	2.80
25	2.30	2.80	2.90
26	2.50	2.90	3.20
27	2.60	3.00	3.20
28	2.70	3.10	3.40
29	2.90	3.40	3.80
30	3.10	3.50	4.00
31	3.20	3.80	4.30
32	3.30	3.80	4.20
33	3.20	4.00	4.40
34	3.30	4.00	4.40
35	3.10	4.05	4.70
36	3.60	4.30	5.50
37	3.70	4.50	5.50
38	4.00	4.85	5.50
39	5.20	5.20	5.50

1-2-147 Transverse Cerebellar Diameter (CEREB) HILL

Reference: Hill L.M., Guzick D., Fries J., Hixson J, Rivello D., "The Transverse Cerebellar Diameter in Estimating Gestational Age in the Large for Gestational Age Fetus" Obstetrics and Gynecology Vol. 75; No 6; June 1990; pages 981-985

GA (weeks)	Cereb (cm)	
	Mean	±2SD
15	1.50	0.30
16	1.60	0.20
17	1.70	0.20
18	1.80	0.20
19	2.00	0.20
20	2.00	0.30
21	2.20	0.30
22	2.30	0.30
23	2.40	0.30
24	2.60	0.40
25	2.80	0.40
26	3.00	0.40
27	3.00	0.40
28	3.30	0.40
29	3.40	0.40
30	3.70	0.40
31	3.90	0.40
32	4.10	0.50
33	4.30	0.50
34	4.60	0.90
35	4.70	0.70
36	4.90	0.90
37	5.10	1.10
38	5.10	1.20
39	5.20	1.00
40	5.20	0.80

1-2-148 Transverse Cerebellar Diameter (CEREB) JACOT-GUILLARMOD

Reference: Jacot-Guillarmod M., Vial Y., Hohlfeld P., Courbes de Biomètrie, Lausanne CHUV 2003

Input Unit: w (weeks)
Output Unit: mm
Min Range: 15.0 weeks
Max Range: 26.0 weeks

GA	CEREB (mm)		
(weeks)	5%	50%	95%
15	14.0	15.0	16.1
16	15.0	16.0	17.0
17	16.0	17.0	18.1
18	17.0	18.0	19.3
19	18.0	19.0	20.6
20	19.0	20.2	22.0
21	20.0	21.3	23.5
22	21.0	22.6	25.0
23	22.0	24.0	26.5
24	23.0	25.5	28.1
25	24.0	27.2	29.6
26	25.0	29.0	31.0

1-2-149 Transverse Cerebellar Diameter (CEREB) NICOLAIDES

Reference: R. J. M. Snijders and K. H. Nicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48

GA (Week)	TCD (cm)		
	5th centile	Median	95th centile
14	1.20	1.40	1.50
15	1.30	1.50	1.70
16	1.40	1.60	1.80
17	1.50	1.70	1.90
18	1.60	1.80	2.10
19	1.70	2.00	2.20
20	1.90	2.10	2.40
21	2.00	2.20	2.50
22	2.10	2.40	2.70
23	2.20	2.50	2.80
24	2.40	2.60	3.00
25	2.50	2.80	3.10
26	2.60	2.90	3.30
27	2.70	3.10	3.40
28	2.90	3.20	3.60
29	3.00	3.30	3.70
30	3.10	3.50	3.90
31	3.20	3.60	4.00
32	3.40	3.70	4.20
33	3.50	3.90	4.30
34	3.60	4.00	4.40
35	3.70	4.10	4.60
36	3.80	4.20	4.70
37	3.90	4.30	4.80
38	4.00	4.40	4.90
39	4.10	4.50	5.10

1-2-150 Transverse Cerebellar Diameter (CEREB) VERBURG

Reference: *Ultrasound Obstet Gynecol 2008; 31: 388–396*
Published online 17 March 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.5225
New charts for ultrasound dating of pregnancy and assessment of fetal growth: longitudinal data from a population-based cohort study
B.O. VERBURG, E. A. P. STEEGERS, M. DE RIDDER, R. J.M. SNIJDERS, E. SMITH, A. HOFMAN, H. A. MOLL, V. W. V. JADDOE and J. C. M. WITTEMAN

Input Unit: w (weeks)

Output Unit: mm

Min Range: 16.0 weeks

Max Range: 36.0 weeks

Transverse Cerebellar Diameter	Mean	$6.9519 + 0.03327 \times GA^2$
	SD	$-0.5177 + 0.0772 \times GA$

GA (Week)	TCD (mm)		
	3th centile	Median	97 th centile
16	14.1	15.5	16.8
17	15.1	16.6	18.1
18	16.1	17.7	19.4
19	17.2	19.0	20.7
20	18.3	20.3	22.2
21	19.5	21.6	23.7
22	20.8	23.1	25.3
23	22.2	24.6	26.9
24	23.6	26.1	28.6
25	25.1	27.8	30.4
26	26.6	29.4	32.2
27	28.3	31.2	34.2
28	29.9	33.0	36.1
29	31.7	34.9	38.2
30	33.5	36.9	40.3
31	35.4	38.9	42.4
32	37.3	41.0	44.7
33	39.4	43.2	47.0
34	41.4	45.4	49.4
35	43.6	47.7	51.8
36	45.8	50.1	54.3

1-2-151 Tibia (TIB) CHITTY

Reference: Charts of fetal size: limb bones Lyn S. Chitty, Douglas G. Altman
BJOG: an International Journal of Obstetrics and Gynaecology August 2002, Vol. 109, pp. 919–929

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (weeks)	TIB (mm)		
	3th Cent.	50th Cent.	97th Cent.
12	4.4	7.6	10.8
13	5.8	9.2	12.5
14	8.0	11.4	14.8
15	10.6	14.1	17.6
16	13.3	16.9	20.5
17	16.2	19.9	23.5
18	19.0	22.8	26.6
19	21.8	25.7	29.6
20	24.5	28.5	32.5
21	27.2	31.2	35.3
22	29.7	33.8	38.0
23	32.1	36.4	40.6
24	34.4	38.8	43.1
25	36.6	41.0	45.5
26	38.7	43.2	47.8
27	40.7	45.3	49.9
28	42.6	47.3	52.0
29	44.4	49.2	54.0
30	46.1	51.0	55.9
31	47.7	52.7	57.7
32	49.3	54.4	59.5
33	50.8	55.9	61.1
34	52.2	57.5	62.7
35	53.5	58.9	64.3
36	54.8	60.3	65.7
37	56.0	61.6	67.2
38	57.2	62.9	68.5
39	58.3	64.1	69.8
40	59.4	65.2	71.1
41	60.4	66.4	72.3
42	61.4	67.4	73.5

1-2-152 Tibia (TIB) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$TIB = -0{,}5555 - 0{,}091554 \times GA + 0{,}023359 \times GA^2 - 6{,}387 \times GA^{-3} \times 10^{-4} + 5{,}5801 \times GA^4 \times 10^{-6}$$

Input Unit: weeks
Output Unit: cm
Min Range: 12.0 weeks
Max Range: 40.0 weeks

GA (weeks)	TIB (cm)		
	5%	50%	95%
12	0.30	0.70	1.20
13	0.50	1.00	1.40
14	0.80	1.20	1.60
15	1.00	1.50	1.90
16	1.30	1.70	2.10
17	1.50	2.00	2.40
18	1.80	2.20	2.70
19	2.10	2.50	2.90
20	2.30	2.70	3.20
21	2.60	3.00	3.40
22	2.80	3.20	3.70
23	3.10	3.50	3.90
24	3.30	3.70	4.20
25	3.50	4.00	4.40
26	3.70	4.20	4.60
27	4.00	4.40	4.80
28	4.20	4.60	5.00
29	4.40	4.80	5.20
30	4.60	5.00	5.40
31	4.70	5.20	5.60
32	4.90	5.40	5.80
33	5.10	5.50	6.00
34	5.30	5.70	6.10
35	5.40	5.80	6.30
36	5.60	6.00	6.40
37	5.70	6.10	6.60
38	5.90	6.30	6.70
39	6.00	6.40	6.90
40	6.10	6.60	7.00

1-2-153 Tibia (TIB) MERZ

Reference: Merz E., Wellek S.
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	TIB (cm)			GA (weeks)	TIB (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.40	0.70	1.00	27.5	4.20	4.60	5.00
13.0	0.60	0.90	1.20	28.0	4.30	4.70	5.10
13.5	0.70	1.00	1.30	28.5	4.40	4.80	5.20
14.0	0.90	1.20	1.50	29.0	4.50	4.90	5.30
14.5	1.10	1.40	1.70	29.5	4.60	5.00	5.40
15.0	1.20	1.50	1.80	30.0	4.60	5.10	5.50
15.5	1.40	1.70	2.00	30.5	4.70	5.10	5.60
16.0	1.50	1.80	2.10	31.0	4.80	5.20	5.60
16.5	1.60	2.00	2.30	31.5	4.90	5.30	5.70
17.0	1.80	2.10	2.40	32.0	5.00	5.40	5.80
17.5	1.90	2.20	2.60	32.5	5.10	5.50	5.90
18.0	2.10	2.40	2.70	33.0	5.10	5.60	6.00
18.5	2.20	2.50	2.90	33.5	5.20	5.60	6.10
19.0	2.30	2.60	3.00	34.0	5.30	5.70	6.20
19.5	2.40	2.80	3.10	34.5	5.40	5.80	6.20
20.0	2.60	2.90	3.20	35.0	5.40	5.90	6.30
20.5	2.70	3.00	3.40	35.5	5.50	5.90	6.40
21.0	2.80	3.10	3.50	36.0	5.60	6.00	6.50
21.5	2.90	3.30	3.60	36.5	5.60	6.10	6.50
22.0	3.00	3.40	3.70	37.0	5.70	6.20	6.60
22.5	3.10	3.50	3.90	37.5	5.80	6.20	6.70
23.0	3.30	3.60	4.00	38.0	5.80	6.30	6.70
23.5	3.40	3.70	4.10	38.5	5.90	6.30	6.80
24.0	3.50	3.80	4.20	39.0	5.90	6.40	6.90
24.5	3.60	4.00	4.30	39.5	6.00	6.40	6.90
25.0	3.70	4.10	4.40	40.0	6.00	6.50	7.00
25.5	3.80	4.20	4.50	40.5	6.10	6.50	7.00
26.0	3.90	4.30	4.70	41.0	6.10	6.60	7.10
26.5	4.00	4.40	4.80	41.5	6.10	6.60	7.10
27.0	4.10	4.50	4.90				

1-2-154 Tibia (TIB) SIRIRAJ

Reference: Sunsaneevithayakul P, Siwadune T, Boriboonhirunsarn D, Titapant V, Sutanthavibul A. Ultrasound Measurement of Tibia and Fibula Bone Length in Thai Fetus. Siriraj Medical Journal 2000 Nov;52(11):733.

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 41.0 weeks

GA (weeks)	TIB (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	2.3	4.18	6.06
13	5.17	7.09	9.00
14	8.0	9.95	11.91
15	10.78	12.77	14.77
16	13.53	15.55	17.58
17	16.22	18.29	20.35
18	18.87	20.97	23.07
19	21.46	23.60	25.73
20	24.00	26.17	28.34
21	26.41	28.62	30.83
22	28.90	31.14	33.38
23	31.25	33.53	35.81
24	33.53	35.85	38.16
25	35.74	38.09	40.45
26	37.88	40.27	42.66
27	39.94	42.37	44.79
28	41.92	44.38	46.85
29	43.82	46.32	48.82
30	45.64	48.17	50.70
31	47.36	49.93	52.50
32	49.00	51.60	54.21
33	50.54	53.18	55.82
34	51.98	54.65	57.33
35	53.32	56.03	58.74
36	54.56	57.31	60.05
37	55.69	58.47	61.26
38	56.71	59.53	62.35
39	57.62	60.48	63.34
40	58.42	61.31	64.20
41	59.09	62.02	64.95

1-2-155 Transverse Trunk Diameter (TTD) HANSMANN

Reference: Hansmann, Hackelöer, Staudach, (Wittmann) "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer-Verlag, New York, 1986; p.435

NOTE: concerning DICOM-SR:
TTD Value is transferred as TAD value (Transverse Abdominal Diameter)
(because no TTD item present in DICOM standard)

GA (weeks)	TTD (cm)		
	5%	50%	95%
12	1.70	1.70	1.70
13	2.00	2.00	2.00
14	2.00	2.40	2.80
15	2.30	2.70	3.10
16	2.70	3.10	3.50
17	3.00	3.40	3.80
18	3.30	3.70	4.20
19	3.60	4.00	4.60
20	3.90	4.40	4.90
21	4.20	4.70	5.30
22	4.50	5.00	5.60
23	4.80	5.30	6.00
24	5.00	5.60	6.30
25	5.30	5.90	6.70
26	5.60	6.20	7.00
27	5.90	6.50	7.30
28	6.20	6.90	7.70
29	6.40	7.20	8.00
30	6.70	7.40	8.30
31	7.00	7.80	8.60
32	7.30	8.10	8.90
33	7.50	8.30	9.30
34	7.80	8.60	9.60
35	8.00	8.90	9.90
36	8.30	9.20	10.20
37	8.50	9.40	10.50
38	8.70	9.70	10.80
39	8.90	9.90	11.10
40	9.10	10.10	11.40
41	9.20	10.20	11.70

1-2-156 Tricuspid (TV E/A) HARADA

Reference: Barry B. Goldberg MD, John P. McGahan MD, Atlas of Ultrasound Measurements, Chapter 36, Table 36-3, Page 163
American Journal of Cardiology, Volume 79, Issue 2, Page 173-177

Input Unit: w (weeks)
Output Unit: Ratio
Min Range: 20 weeks
Max Range: 38 weeks

GA (weeks)	TV E/A		
	2.5th cent.	Median	97.5 th cent.
20	0.47	0.65	0.83
21	0.49	0.66	0.84
22	0.50	0.68	0.85
23	0.52	0.69	0.86
24	0.53	0.70	0.87
25	0.54	0.71	0.88
26	0.55	0.72	0.89
27	0.56	0.73	0.90
28	0.57	0.74	0.90
29	0.58	0.74	0.91
30	0.58	0.75	0.91
31	0.59	0.75	0.92
32	0.59	0.76	0.92
33	0.60	0.76	0.92
34	0.60	0.76	0.92
35	0.60	0.76	0.92
36	0.60	0.76	0.92
37	0.60	0.76	0.92
38	0.60	0.76	0.92

1-2-157 Ulna (ULNA) CHITTY

Reference: Charts of fetal size: limb bones Lyn S. Chitty, Douglas G. Altman
BJOG: an International Journal of Obstetrics and Gynaecology August 2002, Vol. 109, pp. 919–929

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 42.0 weeks

GA (weeks	ULNA (mm)		
	3th Cent.	50th Cent.	97th Cent.
12	3.9	7.3	10.7
13	6.2	9.6	13.1
14	8.8	12.4	15.9
15	11.6	15.3	18.9
16	14.5	18.2	22.0
17	17.3	21.2	25.0
18	20.1	24.0	28.0
19	22.8	26.8	30.8
20	25.3	29.4	33.5
21	27.8	32.0	36.2
22	30.1	34.4	38.7
23	32.3	36.6	41.0
24	34.3	38.8	43.3
25	36.3	40.9	45.5
26	38.2	42.8	47.5
27	39.9	44.7	49.5
28	41.6	46.5	51.3
29	43.2	48.2	53.1
30	44.7	49.8	54.8
31	46.2	51.3	56.4
32	47.5	52.7	58.0
33	48.8	54.1	59.4
34	50.0	55.4	60.8
35	51.2	56.7	62.2
36	52.3	57.9	63.5
37	53.4	59.1	64.7
38	54.4	60.2	65.9
39	55.4	61.2	67.1
40	56.3	62.2	68.2
41	57.2	63.2	69.3
42	58.0	64.1	70.3

1-2-158 Ulna (ULNA) JEANTY

Reference: Jeanty P., Cousaert E., Cantraine F., Hobbins J.C., Tack B., Struyven J. "A longitudinal Study of fetal limb growth" American Journal of Perinatology; Volume 1; Number 2; January 1984; 136-144

$$ULNA = -3{,}4313 + 0{,}38685 \times GA - 0{,}0036949 \times GA^2$$

Input Unit: weeks

Output Unit: cm

Min Range: 12.0 weeks

Max Range: 40.0 weeks

GA (weeks)	ULNA (cm)		
	5%	50%	95%
12	0.30	0.70	1.10
13	0.50	1.00	1.40
14	0.80	1.30	1.70
15	1.10	1.50	2.00
16	1.40	1.80	2.20
17	1.60	2.10	2.50
18	1.90	2.30	2.80
19	2.20	2.60	3.00
20	2.40	2.80	3.30
21	2.60	3.10	3.50
22	2.90	3.30	3.70
23	3.10	3.50	3.90
24	3.30	3.70	4.20
25	3.50	3.90	4.40
26	3.70	4.10	4.60
27	3.90	4.30	4.70
28	4.10	4.50	4.90
29	4.30	4.70	5.10
30	4.40	4.80	5.30
31	4.60	5.00	5.40
32	4.70	5.20	5.60
33	4.90	5.30	5.70
34	5.00	5.50	5.90
35	5.20	5.60	6.00
36	5.30	5.70	6.10
37	5.40	5.80	6.30
38	5.50	5.90	6.40
39	5.60	6.00	6.50
40	5.70	6.10	6.60

1-2-159 Ulna (ULNA) MERZ

Reference: *Merz E., Wellek S.*
"Normal Fetal Development Profiles - A Model to obtain Standard Development Graphs for the Head and Abdominal Parameters and the Long Limb Bones"
Ultraschall in der Medizin 17 (1996) 153-162

GA (weeks)	ULNA (cm)			GA (weeks)	ULNA (cm)		
	5%	50%	95%		5%	50%	95%
12.5	0.30	0.50	0.80	27.5	4.10	4.40	4.80
13.0	0.50	0.80	1.10	28.0	4.10	4.50	4.90
13.5	0.70	1.00	1.30	28.5	4.20	4.60	5.00
14.0	0.80	1.10	1.40	29.0	4.30	4.70	5.10
14.5	1.00	1.30	1.60	29.5	4.40	4.80	5.20
15.0	1.20	1.50	1.80	30.0	4.50	4.90	5.20
15.5	1.30	1.60	1.90	30.5	4.60	4.90	5.30
16.0	1.50	1.80	2.10	31.0	4.60	5.00	5.40
16.5	1.60	1.90	2.20	31.5	4.70	5.10	5.50
17.0	1.70	2.10	2.40	32.0	4.80	5.20	5.60
17.5	1.90	2.20	2.50	32.5	4.90	5.30	5.60
18.0	2.00	2.30	2.70	33.0	4.90	5.30	5.70
18.5	2.10	2.50	2.80	33.5	5.00	5.40	5.80
19.0	2.30	2.60	2.90	34.0	5.10	5.50	5.90
19.5	2.40	2.70	3.10	34.5	5.10	5.50	5.90
20.0	2.50	2.80	3.20	35.0	5.20	5.60	6.00
20.5	2.60	3.00	3.30	35.5	5.20	5.70	6.10
21.0	2.70	3.10	3.40	36.0	5.30	5.70	6.10
21.5	2.90	3.20	3.50	36.5	5.40	5.80	6.20
22.0	3.00	3.30	3.70	37.0	5.40	5.80	6.30
22.5	3.10	3.40	3.80	37.5	5.50	5.90	6.30
23.0	3.20	3.50	3.90	38.0	5.50	5.90	6.40
23.5	3.30	3.60	4.00	38.5	5.60	6.00	6.40
24.0	3.40	3.70	4.10	39.0	5.60	6.00	6.50
24.5	3.50	3.80	4.20	39.5	5.70	6.10	6.50
25.0	3.60	3.90	4.30	40.0	5.70	6.10	6.60
25.5	3.70	4.00	4.40	40.5	5.70	6.20	6.60
26.0	3.80	4.10	4.50	41.0	5.80	6.20	6.60
26.5	3.90	4.20	4.60	41.5	5.80	6.20	6.70
27.0	4.00	4.30	4.70				

1-2-160 Ulna (ULNA) SIRIRAJ

Reference: Sunsaneevithayakul P, Sutanthavibul A, Titapant V, Boriboonhirunsarn D, Siwadune T. Charts of Thai Fetal Biometry: Upper Extremities. Siriraj Medical Journal 2000 Jun;52(06):401.

Input Unit: w (weeks)
Output Unit: mm
Min Range: 12.0 weeks
Max Range: 41.0 weeks

GA (weeks	ULNA (mm)		
	10th Cent.	50th Cent.	90th Cent.
12	3.76	5.53	7.30
13	6.70	8.49	10.28
14	9.55	11.37	13.18
15	12.32	14.17	16.01
16	15.01	16.88	18.76
17	17.62	19.52	21.43
18	20.14	22.08	24.02
19	20.59	24.56	26.53
20	24.95	26.96	28.97
21	27.26	29.29	31.32
22	29.43	31.52	33.60
23	31.55	33.68	35.81
24	33.58	35.76	37.93
25	35.54	37.76	39.98
26	37.41	39.68	41.94
27	39.20	41.52	43.83
28	40.91	43.28	45.65
29	42.53	44.96	47.38
30	44.08	46.56	49.04
31	45.54	48.08	50.61
32	46.92	49.52	52.11
33	48.22	50.88	53.54
34	49.44	52.16	54.88
35	50.58	53.36	56.15
36	51.63	54.48	57.34
37	52.60	55.52	58.45
38	53.49	56.49	59.48
39	54.30	57.37	60.43
40	55.03	58.17	61.31
41	55.68	58.89	62.11

1-2-161 Umbilical Artery Pulsatility Index (UmbArt PI) JSUM

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee
Ultrasound Fetal measurement standardization & Japanese standard proposals
J. Med Ultrasonics Vol. 28 No.5 (2001)

95%	$UmAPI = 1{,}00 \times 10^{-3} \times GA^2 - 8{,}76 \times 10^{-2} \times GA + 3{,}04$
50%	$UmAPI = 1{,}30 \times 10^{-3} \times GA^2 - 1{,}03 \times 10^{-1} \times GA \times 2{,}93$
5%	$UmAPI = 1{,}10 \times 10^{-3} \times GA^2 - 8{,}81 \times 10^{-2} \times GA + 2{,}44$

Input Unit: weeks
Output Unit: index
Min Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	UmbArt PI		
	5%	50%	95%
20	1.118	1.390	1.688
21	1.075	1.340	1.641
22	1.034	1.293	1.597
23	0.996	1.249	1.554
24	0.959	1.207	1.514
25	0.925	1.168	1.475
26	0.893	1.131	1.438
27	0.863	1.097	1.404
28	0.836	1.065	1.371
29	0.810	1.036	1.341
30	0.787	1.010	1.312
31	0.766	0.986	1.285
32	0.747	0.965	1.261
33	0.731	0.947	1.238
34	0.716	0.931	1.218
35	0.704	0.918	1.199
36	0.694	0.907	1.182
37	0.686	0.899	1.168
38	0.681	0.893	1.155
39	0.677	0.890	1.145
40	0.676	0.890	1.136
41	0.677	0.892	1.129

1-2-162 Umbilical Artery Pulsatility Index (UmbArt PI) Merz

Reference: Uteroplacental Circulation In: Merz E, editor. Volume: 1 Ultrasound in Obstetrics and Gynaecology Stuttgart, New York: Thieme; 2005. p. 469 -480, 613.

Input Unit: weeks
Output Unit: index
Min Range: 18 ... 42 weeks

GA (weeks)	UmbArt PI		
	5%	50%	95%
18	1.018	1.361	1.652
19	0.972	1.250	1.539
20	0.940	1.216	1.505
21	0.913	1.189	1.476
22	0.890	1.165	1.450
23	0.869	1.142	1.427
24	0.849	1.122	1.405
25	0.831	1.102	1.385
26	0.813	1.084	1.365
27	0.797	1.065	1.346
28	0.780	1.048	1.327
29	0.764	1.031	1.308
30	0.748	1.014	1.290
31	0.732	0.997	1.272
32	0.716	0.980	1.254
33	0.700	0.963	1.236
34	0.684	0.946	1.218
35	0.668	0.928	1.199
36	0.651	0.910	1.180
37	0.634	0.891	1.160
38	0.615	0.872	1.139
39	0.595	0.851	1.117
40	0.573	0.828	1.093
41	0.547	0.801	1.065
42	0.513	0.765	1.028

1-2-163 Umbilical Artery Resistance Index (UmbArt RI) JSUM

Reference: Takashi Okai. Chairman of JSUM. Ultrasound Diagnostic standard & language committee Ultrasound Fetal measurement standardization & Japanese standard proposals J Med Ultrasonics Vol. 28 No.5 (2001)

95%	$UmARI = 1{,}00 \times 10^{-4} \times GA^2 - 1{,}42 \times 10^{-2} \times GA + 1{,}09$
50%	$UmARI = 3{,}00 \times 10^{-4} \times GA^2 - 2{,}71 \times 10^{-2} \times GA + 1{,}20$
5%	$UmARI = 3{,}00 \times 10^{-4} \times GA^2 - 3{,}01 \times 10^{-2} \times GA + 1{,}18$

Input Unit: weeks

Output Unit: index

Min Range: 20 ... 41 weeks

The table values are calculated from the equations above.

GA (weeks)	UmbArt RI		
	5%	50%	95%
20	0.698	0.778	0.846
21	0.680	0.763	0.836
22	0.663	0.749	0.826
23	0.646	0.735	0.816
24	0.630	0.722	0.807
25	0.615	0.710	0.798
26	0.600	0.698	0.788
27	0.586	0.687	0.780
28	0.572	0.676	0.771
29	0.559	0.666	0.762
30	0.547	0.657	0.754
31	0.535	0.648	0.746
32	0.524	0.640	0.738
33	0.513	0.632	0.730
34	0.503	0.625	0.723
35	0.494	0.619	0.716
36	0.485	0.613	0.708
37	0.477	0.608	0.702
38	0.469	0.603	0.695
39	0.462	0.599	0.688
40	0.456	0.596	0.682
41	0.450	0.593	0.676

1-2-164 Umbilical Artery Resistance Index (UmbArt RI) KURMANAVICIUS

Reference: Kurmanavicius J, Florio I, Wisser J, Hebisch G, Zimmermann R, Müller R.und Huch R. et al. Reference resistance indices of the umbilical, fetal middle cerebral and uterine arteries at 24-42 weeks of gestation. Ultrasound Obstet.Gynecol. 1997;10:112-120.

95%	$UmARI = 1{,}034 - 0{,}0086 \times GA$
50%	$UmARI = 0{,}952 - 0{,}0098 \times GA$
5%	$UmARI = 0{,}872 - 0{,}0107 \times GA$

Input Unit: weeks
Output Unit: index
Range: 24 ... 42 weeks

The table values are calculated from the equations above.

GA (weeks)	UmbArt RI		
	5%	50%	95%
24	0.62	0.72	0.83
25	0.60	0.71	0.82
26	0.59	0.70	0.81
27	0.58	0.69	0.80
28	0.57	0.68	0.79
29	0.56	0.67	0.78
30	0.55	0.66	0.78
31	0.54	0.65	0.77
32	0.53	0.64	0.76
33	0.52	0.63	0.75
34	0.51	0.62	0.74
35	0.50	0.61	0.73
36	0.49	0.60	0.72
37	0.48	0.59	0.72
38	0.47	0.58	0.71
39	0.45	0.57	0.70
40	0.44	0.56	0.69
41	0.43	0.55	0.68
42	0.42	0.54	0.67

1-2-165 Umbilical Artery Resistance Index (UmbArt RI) MERZ

Reference: Merz,E., "Ultrasound in Obstetrics and Gynecology", Vol. 1, Thieme Stuttgart, New York, 2005, p.469-480, 613

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	UmbArt RI		
	5%	50%	95%
18	0.591	0.713	0.825
19	0.577	0.700	0.812
20	0.567	0.690	0.802
21	0.557	0.680	0.793
22	0.548	0.671	0.784
23	0.539	0.663	0.776
24	0.530	0.655	0.768
25	0.522	0.646	0.760
26	0.514	0.639	0.752
27	0.506	0.631	0.745
28	0.498	0.623	0.737
29	0.490	0.615	0.730
30	0.082	0.608	0.723
31	0.474	0.600	0.715
32	0.465	0.592	0.707
33	0.457	0.584	0.700
34	0.449	0.576	0.692
35	0.440	0.567	0.684
36	0.431	0.559	0.675
37	0.422	0.550	0.667
38	0.412	0.540	0.657
39	0.402	0.530	0.648
40	0.390	0.519	0.637
41	0.377	0.506	0.624
42	0.360	0.490	0.608

1-2-166 Uterine Artery Pulsatility Index (UtArt PI) MERZ

Reference: Merz,E., "Ultrasound in Obstetrics and Gynecology", Vol. 1, Thieme Stuttgart, New York, 2005, p.469-480, 613

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	UtArt PI		
	5%	50%	95%
18	0.509	0.888	1.407
19	0.460	0.838	1.356
20	0.436	0.812	1.328
21	0.420	0.795	1.309
22	0.407	0.781	1.293
23	0.397	0.769	1.280
24	0.388	0.759	1.268
25	0.381	0.751	1.258
26	0.374	0.743	1.248
27	0.369	0.736	1.239
28	0.363	0.729	1.230
29	0.358	0.722	1.222
30	0.354	0.716	1.214
31	0.349	0.711	1.207
32	0.345	0.705	1.999
33	0.341	0.700	1.192
34	0.337	0.695	1.185
35	0.333	0.690	1.178
36	0.330	0.684	1.171
37	0.326	0.679	1.164
38	0.322	0.674	1.157
39	0.318	0.669	1.150
40	0.313	0.663	1.143
41	0.308	0.657	1.134
42	0.302	0.649	1.125

1-2-167 Uterine Artery Resistance Index (UtArt RI) MERZ

Reference: Merz,E., "Ultrasound in Obstetrics and Gynecology", Vol. 1: Thieme Stuttgart, New York, 2005, p.469-480, 613

Input Unit: weeks
Output Unit: index
Range: 18 ... 42 weeks

GA (weeks)	UtArt RI		
	5%	50%	95%
18	0.222	0.447	0.659
19	0.204	0.429	0.641
20	0.194	0.419	0.630
21	0.186	0.411	0.622
22	0.180	0.405	0.615
23	0.175	0.400	0.610
24	0.171	0.395	0.605
25	0.167	0.391	0.601
26	0.163	0.387	0.597
27	0.160	0.384	0.593
28	0.157	0.380	0.590
29	0.154	0.378	0.587
30	0.152	0.375	0.584
31	0.150	0.372	0.581
32	0.147	0.370	0.578
33	0.145	0.368	0.576
34	0.144	0.366	0.574
35	0.142	0.364	0.571
36	0.140	0.362	0.569
37	0.139	0.360	0.567
38	0.137	0.358	0.566
39	0.136	0.357	0.564
40	0.135	0.355	0.562
41	0.134	0.354	0.561
42	0.133	0.353	0.559

Section 1-3
Fetal Weight Estimation (Equations and Tables)

1-3-1 EFW Campbell (AC)

$$FW = e^{-4{,}564 + 0{,}282 \times AC - 0{,}00331 \times AC^2} \times 1000$$

Input:	AC (cm)	Range: 21.0 ... 40.0 cm
Output:	FW (g)	Range: 903 ... 4137 g

Reference: *Campbell S., Wilkin D.*
„Ultrasonic measurement of fetal abdomen circumference in the estimation of fetal weight."
British Journal Obstetrics and Gynecology; Sept. 1975; 82(9); 689-97

Deviation: 14.6% (= mean value of deviations given in Table I found in the reference on page 694)

1-3-2 EFW Hadlock (AC, BPD)

$$FW = 10^{1{,}1134 + 0{,}05845 \times AC - 0{,}000604 \times AC^2 - 0{,}007365 \times BPD^2 + 0{,}000595 \times BPD \times AC + 0{,}1694 \times BPD}$$

Inputs:	AC (cm)	Range: 21.8 ... 36.5 cm
	BPD (cm)	Range: 7.0 ... 10.5 cm
Output:	FW (g)	Range: 100 ... 4500 g

Reference: *Hadlock FP, et al, "Sonographic Estimation of Fetal Weight"*
Radiology 1984:150:535-540

1-3-3 EFW Hadlock 1 (AC, FL)

$$FW = 10^{1{,}304 + 0{,}05281 \times AC + 0{,}1938 \times FL - 0{,}004 \times AC \times FL}$$

Inputs:	AC, FL in (cm)
Output:	FW in (g)
Deviation:	SD 15.4%

Reference: *Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337*

Deviation: SD 15.4 % (= double the value (2SD) given in Table I in the given reference)

1-3-4 EFW Hadlock 2 (BPD, AC, FL)

$$FW = 10^{1,335 - 0,0034 \times AC \times FL + 0,0316 \times BPD + 0,0457 \times AC + 0,1623 \times FL}$$

Inputs: BPD, AC, FL in (cm)
Output: FW in (g)

Reference: Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337

Deviation: 14.6% (= double the value (2SD) given in Table I in the given reference)

1-3-5 EFW Hadlock 3 (HC, AC, FL)

$$FW = 10^{1,326 - 0,00326 \times AC \times FL + 0,0107 \times HC + 0,0438 \times AC + 0,158 \times FL}$$

Inputs: HC, AC, FL in (cm)
Output: FW in (g)
Deviation: SD 14.8%

Reference: Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337

Deviation: 14.8 %(= double the value (2SD) given in Table I in the given reference)

1-3-6 EFW Hadlock 4 (BPD, HC, AC, FL)

$$FW = 10^{1,3596 - 0,00386 \times AC \times FL + 0,0064 \times HC + 0,00061 \times BPD \times AC + 0,0424 \times AC + 0,174 \times FL}$$

Inputs: BPD, HC, AC, FL in (cm)
Output: FW in (g)
Deviation: SD 14.6%

Reference: Hadlock FP, et al, "Estimation of fetal weight with the use of head, body and femur measurements: A prospective study" Am. J. Obstet. Gynecol. 1985; 151: 333-337

Deviation: SD 14.6 %(= double the value (2SD) given in Table I in the given reference)

1-3-7 EFW Hansmann (BPD, TTD)

$$FW = (-1,05775 \times BPD + 0,649145 \times TTD + 0,0930707 \times BPD^2 - 0,020562 \times TTD^2 + 0,515263) \times 1000$$

Reference: Hansmann, Hackeloer, Staudach, Wittmann, "Ultrasound Diagnosis in Obstetrics and Gynecology," Springer-Verlag, New York, 1986, page 154

1-3-8 EFW Merz (AC, BPD)

Inputs: AC (cm) Range: 21,8 - 36,5 [cm]
BPDcm) Range: 7 - 10,5 ... 12.1 [cm]
Output: FW (g)

$$FW = -3200{,}40479 + 157{,}07186 \times AC + 15{,}90391 \times BPD^2$$

Reference: E. Merz, "Ultrasound in Obstetrics and Gynecology" Vol.1: Obstetrics, Second edition, 2005 Georg Thieme Verlag, 603-608

1-3-9 EFW Osaka (BPD, FTA, FL)

$$FW = 6{,}3 + 1{,}25647 \times BPD^3 + 3{,}50665 \times FTA \times FL$$

Inputs: BPD, FL in (cm) FTA in (cm^2)
Output: FW in (g)

Reference: Perinatal care Vol. 9 No. 5, 44(414)

1-3-10 EFW Persson 1 (BPD, MAD, FL)

$$FW = (BPD \times 10)^{0{,}972} \times (MAD \times 10)^{1{,}743} \times (FL \times 10)^{0{,}367} \times 10^{-2{,}646}$$

Inputs: BPD, MAD, FL in (cm)
Output: FW in (g)

Reference: Intrauterine growth curves based on ultrasonically estimated foetal weights; K Marsal, P-H Persson, T Larsen, H Lilja, A Selbing and B Sultan; Acta Paediatr 85: 843-8.1996;

1-3-11 EFW Persson 2 (BPD,MAD)

$$FW = (BPD \times 10)^{1,\,321} \times (MAD \times 10)^{1,\,833} \times 10^{-2,\,830}$$

Inputs: BPD, MAD in (cm)
Output: FW in (g)

Reference: Intrauterine growth curves based on ultrasonically estimated foetal weigths; K. Marsal, P-H. Person, T. Larsen, H. Lilja, A. Selbing and B. Sultan; ; Acta Paediatr 85: 843-8.1996;

1-3-12 EFW Schild (HC, AC, FL)

$$FW = 5381{,}193 + 150{,}324 \times HC + 2{,}069 \times FL^3 + 0{,}0232 \times AC^3 - 6235{,}478 \times \log(HC)$$

Inputs: HC, AC, FL in [cm]
Output: FW in [g]

Reference: *A new formula for calculating weight in the fetus of <=1600 g;*
R. L. SCHILD, K. FELL, R. FIMMERS, U. GEMBRUCH and M. HANSMANN
Ultrasound Obstet Gynecol (in press)
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/uog.1741

1-3-13 EFW Shepard (AC, BPD)

$$FW = 10^{-1{,}7492 + 0{,}166 \times BPD + 0{,}046 \times AC - 0{,}002646 \times AC \times BPD} \times 1000$$

Inputs:	AC (cm)	Range: 15.5 ... 40.0 cm
	BPD (cm)	Range: 3.1 ...10.0 cm
Output:	FW (g)	Range: 224 ... 4900 g
Deviation:	SD 21.20%	

Reference: *Shepard MJ, et al, "An Evaluation of Two Equations for Predicting Fetal Weight by Ultrasound", American Journal of OB & Gyn, January 1982; 142(1):47-54*

1-3-14 EFW Shinozuka 1 (BPD, APTD, TTD, FL))

$$FW = 1{,}07 \times BPD^3 + 3{,}42 \times APTD \times TTD \times FL$$

Inputs: BPD, APTD, TTD, FL in (cm)
Output: FW in (g)

Reference: *Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al*
"Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes"
American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987

1-3-15 EFW Shinozuka 2 (BPD, FL, AC)

$$FW = 1{,}07 \times BPD^3 + 0{,}30 \times AC^2 \times FL$$

Inputs: BPD, FL in (cm) AC in (cm^2)
Output: FW in (g)

Reference: *Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al*
"Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes"
American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987

1-3-16 EFW Shinozuka 3 (BPD, APTD, TTD, LV)

$$FW = 1{,}07 \times BPD^3 + 2{,}91 \times APTD \times TTD \times LV$$

Inputs: BPD, APTD, TTD, LV (SL) in (cm)

Output: FW in (g)

Reference: *Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al "Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes" American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987*

1-3-17 EFW Tokyo (BPD, APTD, TTD, FL)

$$FW = 1{,}07 \times BPD^3 + 3{,}42 \times APTD \times TTD \times FL$$

Inputs: BPD, APTD, TTD, FL in (cm)

Output: FW in (g)

Reference: *Shinozuka N., Okai T., Kohzuma S., Mukubo M., Shih C.T., Maeda T., et al "Formulas for Fetal Weight Estimation by Ultrasound Measurements based on Neonatal Specific Gravities and Volumes" American Journal of Obstetrics and Gynecology 157: 1140-1145; 1987*

Section 1-4
Gestational Age by EFW

1-4-1 EFW (age) Hadlock

Reference: *Hadlock F.P., Harrist R. B, Martinez-Poyer J.*
"In utero analysis of fetal growth: a sonographic weight standard" Radiology.1991, 181:129-133

NOTE: EFW and GA Values are taken from Fetal Growth Table; EFW (mean values) are used as Input and GA as Output! (Growth table see: Section 2-5-2 on page 2-251)

EFW (g)	GA (weeks)
35	10
45	11
58	12
73	13
93	14
117	15
146	16
181	17
223	18
273	19
331	20
399	21
478	22
568	23
670	24
785	25
913	26
1055	27
1210	28
1379	29
1559	30
1751	31
1953	32
2162	33
2377	34
2595	35
2813	36
3028	37
3236	38
3435	39
3619	40

1-4-2 EFW (age) JSUM 2001

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee Ultrasound Fetal measurement standardization & Japanese standard proposals J Med Ultrasonics Vol. 28 No.5 (2001)

NOTE: EFW and GA Values are taken from Fetal Growth Table; EFW (mean values) are used as Input and GA as Output! ((Growth table see chapter 1.1.5.5)

EFW (g)	GA (weeks)
187	18
247	19
313	20
387	21
469	22
560	23
660	24
771	25
892	26
1023	27
1163	28
1313	29
1470	30
1635	31
1805	32
1980	33
2156	34
2333	35
2507	36
2676	37
2838	38
2989	39
3125	40
3244	41

1-4-3 EFW (age) OSAKA

Reference: Perinatal care Vol. 9 No. 5

NOTE: EFW and GA Values are taken from Fetal Growth Table; EFW (50% values) are used as Input and GA as Output! (Growth table see: Section 2-5-8 on page 2-257)

EFW (g)	GA (w+d)	EFW (g)	GA (w+d)	EFW (g)	GA (w+d)	EFW (g)	GA (w+d)	EFW (g)	GA (w+d)
137	16w0d	413	20w6d	930	25w5d	1663	30w4d	2502	35w3d
142	16w1d	425	21w0d	949	25w6d	1687	30w5d	2527	35w4d
147	16w2d	436	21w1d	968	26w0d	1711	30w6d	2551	35w5d
153	16w3d	449	21w2d	987	26w1d	1735	31w0d	2576	35w6d
158	16w4d	461	21w3d	1007	26w2d	1759	31w1d	2600	36w0d
164	16w5d	474	21w4d	1026	26w3d	1783	31w2d	2624	36w1d
170	16w6d	486	21w5d	1046	26w4d	1808	31w3d	2648	36w2d
176	17w0d	499	21w6d	1066	26w5d	1832	31w4d	2672	36w3d
182	17w1d	513	22w0d	1086	26w6d	1857	31w5d	2696	36w4d
188	17w2d	526	22w1d	1106	27w0d	1881	31w6d	2720	36w5d
195	17w3d	540	22w2d	1127	27w1d	1906	32w0d	2744	36w6d
202	17w4d	553	22w3d	1147	27w2d	1930	32w1d	2767	37w0d
209	17w5d	568	22w4d	1168	27w3d	1955	32w2d	2791	37w1d
216	17w6d	582	22w5d	1189	27w4d	1980	32w3d	2814	37w2d
223	18w0d	596	22w6d	1210	27w5d	2005	32w4d	2837	37w3d
231	18w1d	611	23w0d	1232	27w6d	2029	32w5d	2860	37w4d
238	18w2d	626	23w1d	1253	28w0d	2054	32w6d	2883	37w5d
246	18w3d	641	23w2d	1275	28w1d	2079	33w0d	2906	37w6d
254	18w4d	656	23w3d	1296	28w2d	2104	33w1d	2928	38w0d
263	18w5d	672	23w4d	1318	28w3d	2129	33w2d	2950	38w1d
271	18w6d	688	23w5d	1340	28w4d	2154	33w3d	2973	38w2d
280	19w0d	704	23w6d	1363	28w5d	2179	33w4d	2995	38w3d
289	19w1d	720	24w0d	1385	28w6d	2204	33w5d	3016	38w4d
298	19w2d	736	24w1d	1407	29w0d	2229	33w6d	3038	38w5d
308	19w3d	753	24w2d	1430	29w1d	2254	34w0d	3059	38w6d
317	19w4d	770	24w3d	1453	29w2d	2279	34w1d	3080	39w0d
327	19w5d	787	24w4d	1476	29w3d	2304	34w2d	3101	39w1d
337	19w6d	804	24w5d	1499	29w4d	2329	34w3d	3121	39w2d
347	20w0d	822	24w6d	1522	29w5d	2354	34w4d	3142	39w3d
358	20w1d	839	25w0d	1545	29w6d	2379	34w5d	3162	39w4d
368	20w2d	857	25w1d	1568	30w0d	2403	34w6d	3182	39w5d
379	20w3d	875	25w2d	1592	30w1d	2428	35w0d	3201	39w6d
390	20w4d	893	25w3d	1615	30w2d	2453	35w1d	3220	40w0d
401	20w5d	912	25w4d	1639	30w3d	2478	35w2d		

1-4-4 EFW (age) SHINOZUKA

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry"
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

EFW (g)	GA (w+d/d)		EFW (g)	GA (w+d/d)	
	mean	±dev		mean	±dev
250	19w3d	7	1650	31w2d	10
300	20w7d	7	1700	31w4d	11
350	20w4d	7	1750	31w6d	11
400	21w2d	7	1800	32w1d	11
450	21w5d	7	1850	32w3d	11
500	22w2d	7	1900	32w5d	12
550	22w6d	7	1950	32w7d	12
600	23w2d	7	2000	33w1d	12
650	23w6d	7	2050	33w3d	12
700	24w2d	7	2100	33w5d	13
750	24w5d	7	2150	34w7d	13
800	25w2d	8	2200	34w2d	13
850	25w5d	8	2250	34w4d	13
900	26w1d	8	2300	34w6d	14
950	26w4d	8	2350	35w1d	14
1000	26w6d	8	2400	35w3d	14
1050	27w2d	8	2450	35w5d	14
1100	27w5d	8	2500	35w7d	15
1150	28w7d	9	2550	36w2d	15
1200	28w3d	9	2600	36w4d	15
1250	28w5d	9	2650	36w6d	16
1300	29w1d	9	2700	37w2d	16
1350	29w3d	9	2750	37w4d	16
1400	29w5d	9	2800	37w6d	17
1450	30w7d	10	2850	38w1d	17
1500	30w2d	10	2900	38w4d	17
1550	30w5d	10	2950	38w6d	18
1600	30w7d	10	3000	39w2d	18

1-4-5 EFW (age) TOKYO

Reference: *Norio Shinozuk, M.D., Takashi Okai, M.D.,Shiro Kohzuma, M.D., Masaaki Mukuba , M.D., Chen-Ting Shin, M.D.,Tsugio Maeda, M.D., Yoshinori Kuwabara, M.D. and Masahiko Mizuni, M.D.*
Formulas for fetal weight estimation by ultrasound measurements based on neonatal specific gravities and volumes
American Journal of Obstetrics and Gynecology, St Louis; Vol. 157, No. 5, pp. 1140-1145, Nov., 1987

NOTE: EWF and GA Values are taken from Fetal Growth Table; EFW (mean values) are used as Input and GA as Output! (Growth table see: Section 2-5-11 on page 2-259)

EFW (g)	GA (days)	EFW (g)	GA (days)	EFW (g)	GA (days)	EFW (g)	GA (days)
642	161	1063	193	1849	225	2765	257
649	162	1083	194	1877	226	2792	258
656	163	1103	195	1906	227	2817	259
664	164	1123	196	1934	228	2843	260
672	165	1144	197	1963	229	2868	261
681	166	1165	198	1992	230	2893	262
689	167	1187	199	2021	231	2917	263
699	168	1209	200	2050	232	2941	264
708	169	1231	201	2080	233	2965	265
719	170	1253	202	2109	234	2988	266
729	171	1276	203	2138	235	3010	267
740	172	1299	204	2168	236	3032	268
751	173	1323	205	2197	237	3053	269
763	174	1347	206	2226	238	3074	270
775	175	1371	207	2256	239	3095	271
788	176	1395	208	2285	240	3114	272
801	177	1420	209	2314	241	3133	273
814	178	1445	210	2343	242	3152	274
828	179	1470	211	2373	243	3169	275
842	180	1496	212	2402	244	3186	276
857	181	1521	213	2431	245	3202	277
872	182	1547	214	2460	246	3218	278
887	183	1574	215	2488	247	3232	279
903	184	1600	216	2517	248	3246	280
919	185	1627	217	2545	249	3259	281
936	186	1654	218	2574	250	3271	282
953	187	1681	219	2602	251	3283	283
970	188	1709	220	2630	252	3293	284
988	189	1736	221	2657	253	3302	285
1006	190	1764	222	2685	254	3311	286
1025	191	1792	223	2712	255	3318	287
1044	192	1820	224	2739	256		

Section 1-5
Fetal Weight Growth (Equations and Tables)

1-5-1 FWg Ananth (Twins Monochorionic)

Reference: *Standards of Birth Weight in Twin Gestations*
Stratified by Placental Chorionicity
CANDE V. ANANTH, PhD, MPH, ANTHONY M. VINTZILEOS, MD, SUSAN SHEN-SCHWARZ, MD, JOHN C. SMULIAN, MD, MPH, AND YU-LING LAI, MSN, RNC
The American College of Obstetricians and Gynecologists. Published by Elsevier Science Inc.
VOL. 91, NO. 6, JUNE 1998

Input Unit: weeks
Output Unit: grams
Min. Range: 23 weeks
Max. Range: 41 weeks

GA (weeks)	FW (grams)		
	5%	50%	95%
23	392.0	533.00	683.0
24	456.0	620.00	794.0
25	530.0	720.00	922.0
26	615.0	836.00	1072.0
27	713.0	970.00	1242.0
28	823.0	1119.00	1433.0
29	944.0	1282.00	1643.0
30	1072.0	1457.00	1867.0
31	1204.0	1637.00	2097.0
32	1335.0	1814.00	2325.0
33	1457.0	1980.00	2537.0
34	1562.0	2123.00	2720.0
35	1646.0	2237.00	2866.0
36	1728.0	2349.00	3009.0
37	1831.0	2489.00	3189.0
38	1957.0	2660.00	3408.0
39	2100.0	2854.00	3657.0
40	2255.0	3065.00	3927.0
41	2422.0	3292.00	4217.0

1-5-2 FWg Ananth (Twins Dichorionic)

Reference: *Standards of Birth Weight in Twin Gestations*
Stratified by Placental Chorionicity
CANDE V. ANANTH, PhD, MPH, ANTHONY M. VINTZILEOS, MD, SUSAN SHEN-SCHWARZ, MD, JOHN C. SMULIAN, MD, MPH, AND YU-LING LAI, MSN, RNC
The American College of Obstetricians and Gynecologists. Published by Elsevier Science Inc.
VOL. 91, NO. 6, JUNE 1998

Input Unit: weeks
Output Unit: grams
Min. Range: 23 weeks
Max. Range: 41 weeks

GA (weeks)	FW (grams)		
	5%	50%	95%
23	477.0	632.00	801.0
24	538.0	712.00	903.0
25	606.0	803.00	1018.0
26	684.0	906.00	1148.0
27	771.0	1021.00	1294.0
28	870.0	1152.00	1459.0
29	980.0	1298.00	1645.0
30	1102.0	1460.00	1850.0
31	1235.0	1635.00	2072.0
32	1374.0	1819.00	2306.0
33	1515.0	2007.00	2543.0
34	1653.0	2190.00	2775.0
35	1781.0	2359.00	2989.0
36	1892.0	2506.00	3176.0
37	1989.0	2634.00	3339.0
38	2079.0	2753.00	3489.0
39	2167.0	2870.00	3637.0
40	2258.0	2990.00	3790.0
41	2352.0	3115.00	3948.0

1-5-3 FWg Brenner

Reference: Brenner W.E., Edelman D.A., Hendricks C.H.
„A standard of fetal growth for the United States of America“
American Journal of Obstetrics and Gynecology; November 1; 1976; pp. 555-564

GA (weeks)	FW (grams)		
	10%	50%	90%
21	280	410	860
22	320	480	920
23	370	550	990
24	420	640	1080
25	490	740	1180
26	570	860	1320
27	660	990	1470
28	770	1150	1660
29	890	1310	1890
30	1030	1460	2100
31	1180	1630	2290
32	1310	1810	2500
33	1480	2010	2690
34	1670	2220	2880
35	1870	2430	3090
36	2190	2650	3290
37	2310	2870	3470
38	2510	3030	3610
39	2680	3170	3750
40	2750	3280	3870
41	2800	3360	3980
42	2830	3410	4060
43	2840	3420	4100
44	2790	3390	4110

1-5-4 FWg Bourgogne

Reference: *T. Rousseau, C. Ferdynus, C. Quantin, J.-B. Gouyon, P. Sagot, CMPRB*
Liveborn birth-weight of single and uncomplicated pregnancies between 28 and 42 weeks of gestation from Burgundy perinatal network
Journal de Gynécologie Obstétrique et Biologie de la Reproduction (2008) 37, 589—596

Input Unit: (w) weeks
Output Unit: grams
Min. Range: 28.0 weeks
Max. Range: 42.0 weeks

GA (weeks)	EFW (grams)		
	10%	50%	90%
28	901	1127	1354
29	1002	1286	1570
30	1114	1451	1789
31	1250	1632	2014
32	1404	1822	2241
33	1579	2024	2470
34	1774	2239	2704
35	1978	2460	2941
36	2185	2679	3174
37	2385	2889	3392
38	2568	3077	3587
39	2724	3238	3752
40	2853	3372	3891
41	2960	3485	4010
42	3057	3587	4118

1-5-5 FWg Doubilet

Reference: Doubilet, P.M., MD. PhD., Benson, C.B.,MD , Nadel, A.S., MD, Ringer, St. A., MD. PhD. „Improved birth weight table for neonates developed from gestations dated by early ultrasonography " J Ultrasound Med; December 4; 1996; 16:241-249

Input Unit: weeks
Output Unit: grams
Min Range: 25.0 weeks
Max Range: 43.0 weeks

GA (weeks	FW (grams)		
	5%	50%	95%
25	450	660	968
26	523	760	1103
27	609	875	1257
28	707	1005	1430
29	820	1153	1623
30	947	1319	1836
31	1090	1502	2070
32	1249	1702	2321
33	1422	1918	2587
34	1608	2146	2865
35	1804	2383	3148
36	2006	2622	3428
37	2210	2859	3698
38	2409	3083	3947
39	2595	3288	4164
40	2762	3462	4340
41	2900	3597	4462
42	3002	3685	4523
43	3061	3717	4515

1-5-6 FWg Eik-Nes

Reference: H. K. Gjessing, P. Grøttum, S. H. Eik-Nes; A direct method for ultrasound prediction of day of delivery: a new, population-based approach; Ultrasound in Obstetrics & Gynecology, Volume 30, Issue 1, pages 19-27, July 2007

Input Unit: d(days)
Output Unit: grams
Min. Range: 168 days
Max. Range: 301 days

GA (d)	EFW (grams	GA (d)	EFW (grams	GA (d)	EFW (grams
168	627	215	1556	262	3049
169	644	216	1582	263	3079
170	660	217	1608	264	3110
171	676	218	1635	265	3140
172	693	219	1662	266	3169
173	710	220	1690	267	3198
174	726	221	1718	268	3227
175	743	222	1746	269	3256
176	760	223	1775	270	3284
177	777	224	1805	271	3312
178	794	225	1835	272	3339
179	812	226	1865	273	3366
180	829	227	1895	274	3393
181	846	228	1926	275	3419
182	864	229	1958	276	3445
183	882	230	1990	277	3471
184	900	231	2022	278	3496
185	917	232	2054	279	3521
186	936	233	2087	280	3546
187	954	234	2120	281	3571
188	972	235	2153	282	3595
189	991	236	2186	283	3618
190	1009	237	2220	284	3642
191	1028	238	2254	285	3665
192	1047	239	2287	286	3688
193	1066	240	2321	287	3710
194	1086	241	2355	288	3733
195	1105	242	2390	289	3755
196	1125	243	2424	290	3776
197	1145	244	2458	291	3798
198	1166	245	2492	292	3819
199	1186	246	2526	293	3841
200	1207	247	2560	294	3862
201	1228	248	2594	295	3883
202	1250	249	2627	296	3903
203	1271	250	2661	297	3924
204	1294	251	2694	298	3944

GA (d)	EFW (grams	GA (d)	EFW (grams	GA (d)	EFW (grams
205	1316	252	2728	299	3965
206	1338	253	2761	300	3985
207	1361	254	2794	301	4006
208	1384	255	2827		
209	1408	256	2859		
210	1432	257	2891		
211	1456	258	2923		
212	1480	259	2955		
213	1505	260	2987		
214	1530	261	3018		

1-5-7 FWg Hadlock

Reference: Hadlock F.P., Harrist R.B., Martinez-Poyer J.
„In Utero Analysis of Fetal Growth: A Sonographic Weight Standard“
Radiology.1991, 181: 129-133

$$FW = e^{0,578 + 0,332 \times GA - 0,00354 \times GA^2}$$

Input Unit: weeks

Output Unit: gram

Min. Range: 10.0 weeks

Max. Range: 40.0 weeks

GA (weeks)	FW (gram)				
	3%	10%	50%	90%	97%
10	26	29	35	41	44
11	34	37	45	53	56
12	43	48	58	68	73
13	55	61	73	85	91
14	70	77	93	109	116
15	88	97	117	137	146
16	110	121	146	171	183
17	136	150	181	212	226
18	167	185	223	261	279
19	205	227	273	319	341
20	248	275	331	387	414
21	299	331	399	467	499
22	359	398	478	559	598
23	426	471	568	665	710
24	503	556	670	784	838
25	589	652	785	918	981
26	685	758	913	1068	1141
27	791	876	1055	1234	1319
28	908	1004	1210	1416	1513
29	1034	1145	1379	1613	1724
30	1169	1294	1559	1824	1949
31	1313	1453	1751	2049	2189
32	1465	1621	1953	2285	2441
33	1622	1794	2162	2530	2703
34	1783	1973	2377	2781	2971
35	1946	2154	2595	3036	3244
36	2110	2335	2813	3291	3516
37	2271	2513	3028	3543	3785
38	2427	2686	3236	3786	4045
39	2576	2851	3435	4019	4294
40	2714	3004	3619	4234	4524

1-5-8 FWg Hansmann

Reference: Hansmann, Hackeloer, Staudach, Wittmann "Ultrasound Diagnosis in Obstetrics and Gynecology" Springer- Verlag, New York, 1986, p. 431

GA (weeks)	FW (gram)
13	14
14	25
15	50
16	80
17	100
18	150
19	200
20	250
21	300
22	350
23	450
24	530
25	700
26	850
27	1000
28	1100
29	1250
30	1400
31	1600
32	1800
33	2000
34	2250
35	2550
36	2750
37	2950
38	3100
39	3250
40	3400

1-5-9 FWg Hansmann (86)

Reference: Hansmann, Hackeloer, Staudach, Wittmann. Ultrasound Diagnosis in Obstetrics and Gynecology. Springer Verlag, New York, 1986, p. 186

AGE (weeks)	FW (Gram)		
	-1 SD	mean	+1 SD
9	44	45	46
10	46	48	50
11	51	54	57
12	59	63	67
13	70	77	84
14	85	96	107
15	106	122	138
16	133	155	177
17	167	197	227
18	207	247	287
19	255	307	359
20	311	377	443
21	375	456	537
22	447	545	643
23	527	644	761
24	614	753	892
25	709	871	1033
26	813	1000	1187
27	925	1139	1353
28	1045	1288	1531
29	1173	1448	1723
30	1311	1618	1925
31	1455	1798	2141
32	1605	1984	2363
33	1759	2176	2593
34	1915	2369	2823
35	2066	2557	3048
36	2208	2734	3260
37	2333	2890	3447
38	2432	3016	3600
39	2494	3099	3704
40	2509	3131	3753

1-5-10 FWg Hobbins/Persutte

Reference: Persutte,W.H., Schmidt,K., Hobbins,J.C.
„Prenatal and neonatal estimations of weight percentile are very different“
American Journal of Obstetrics & Gynecology, 178(1),p165

Input Unit: weeks
Output Unit: grams
Min. Range: 25weeks
Max. Range: 38 weeks

GA (weeks	EFW (grams)		
	-1 SD	mean	+1 SD
25		632	
26	126	810	1496
27	316	1002	1687
28	505	1186	1872
29	679	1364	2050
30	851	1536	2222
31	1017	1703	2388
32	1179	1864	2549
33	1335	2020	2705
34	1486	2171	2857)
35	1647	2333	3018
36	1776	2461	3146
37	1915	2600	3286
38	2037	2722	3408
39	2183	2875	3554
40	2325	2980	3673
41		3071	

1-5-11 FWg Johnsen (neutral)

Reference: Johnsen SL, Rasmussen S, Wilsgaard T, Sollien R, Kiserud T, Longitudial references ranges for estimated fetal weight, Acta Obstetricia et Gynecologica. 2006; 85: 286-297

Input Unit: weeks
Output Unit: grams
Min. Range: 20.0 weeks
Max. Range: 42.0 weeks

Age (weeks	FW (gram)		
	10%	50%	90%
20	283	340	408
21	350	416	495
22	426	503	595
23	512	602	707
24	610	713	833
25	717	835	972
26	836	970	1126
27	964	1116	1292
28	1102	1274	1472
29	1249	1442	1665
30	1403	1619	1868
31	1564	1805	2082
32	1730	1997	2304
33	1900	2194	2533
34	2071	2393	2765
35	2242	2593	2998
36	2411	2791	3230
37	2576	2984	3458
38	2736	3171	3677
39	2883	3347	3886
40	3021	3511	4081
41	3147	3661	4258
42	3258	3793	4415

1-5-12 FWg Johnsen (male)

Reference: *Johnsen SL, Rasmussen S, Wilsgaard T, Sollien R, Kiserud T, Longitudial references ranges for estimated fetal weight, Acta Obstetricia et Gynecologica. 2006; 85: 286-297*

Input Unit: weeks

Output Unit: grams

Min. Range: 20.0 weeks

Max. Range: 42.0 weeks

Age (weeks	FW (gram)		
	10%	50%	90%
20	293	348	414
21	361	426	503
22	440	516	604
23	529	617	719
24	629	730	847
25	740	855	989
26	862	993	1144
27	994	1143	1314
28	1135	1303	1496
29	1286	1475	1691
30	1444	1655	1898
31	1608	1844	2114
32	1778	2039	2338
33	1951	2238	2568
34	2125	2440	2801
35	2298	2641	3035
36	2469	2840	3267
37	2635	3034	3494
38	2793	3220	3712
39	2943	3395	3918
40	3080	3557	4109
41	3204	3704	4281
42	3313	3832	4433

1-5-13 FWg Johnsen (female)

Reference: Johnsen SL, Rasmussen S, Wilsgaard T, Sollien R, Kiserud T, Longitudial references ranges for estimated fetal weight, Acta Obstetricia et Gynecologica. 2006; 85: 286-297

Input Unit: weeks
Output Unit: grams
Min. Range: 20.0 weeks
Max. Range: 42.0 weeks

Age (weeks	FW (gram)		
	10%	50%	90%
20	274	330	397
21	339	404	482
22	413	489	579
23	498	586	689
24	593	694	812
25	698	813	948
26	813	945	1098
27	939	1088	1261
28	1074	1242	1438
29	1217	1407	1627
30	1368	1581	1828
31	1526	1764	2038
32	1688	1953	2258
33	1855	2146	2484
34	2023	2343	2715
35	2191	2541	2947
36	2357	2737	3179
37	2519	2929	3406
38	2675	3115	3627
39	2823	3291	3837
40	2961	3456	4034
41	3087	3607	4215
42	3198	3741	4376

1-5-14 FWg Jsum 2001

Reference: Takashi Okai, Chairman of JSUM, Ultrasound Diagnostic standard & language committee Ultrasound Fetal measurement standardization & Japanese standard proposals J Med Ultrasonics Vol. 28 No.5 (2001)

NOTE: The system uses 1.5 SD (calculated from the table below)

GA (weeks)	FW (gram)		
	- 2SD	mean	+ 2SD
18	126	187	247
19	166	247	328
20	211	313	416
21	262	387	512
22	320	469	617
23	386	560	733
24	461	660	859
25	546	771	996
26	639	892	1144
27	742	1023	1304
28	853	1163	1474
29	972	1313	1653
30	1098	1470	1842
31	1231	1635	2039
32	1368	1805	2243
33	1508	1980	2451
34	1650	2156	2663
35	1790	2333	2875
36	1927	2507	3086
37	2059	2676	3294
38	2181	2838	3494
39	2292	2989	3685
40	2388	3125	3862
41	2465	3244	4023

1-5-15 FWg Kramer (female)

Reference: A New and Improved Population-Based Canadian Reference for Birth Weight for Gestational Age PEDIATRICS Vol. 108 No. 2 August 2001

Input Unit: w (weeks)
Output Unit: grams
Min. Range: 22.0 weeks
Max. Range: 43.0 weeks

Age	FW (gram)		
(weeks)	5%	50%	95%
22	347	466	576
23	403	557	706
24	456	651	839
25	508	751	982
26	562	858	1139
27	624	976	1313
28	697	1109	1499
29	787	1259	1701
30	894	1427	1918
31	1026	1613	2150
32	1184	1817	2399
33	1369	2035	2664
34	1581	2266	2948
35	1813	2506	3242
36	2052	2744	3523
37	2286	2968	3752
38	2502	3169	3931
39	2680	3334	4076
40	2814	3470	4212
41	2906	3576	4330
42	2954	3655	4423
43	2975	3717	4495

1-5-16 FWg Kramer (male)

Reference: A New and Improved Population-Based Canadian Reference for Birth Weight for Gestational Age PEDIATRICS Vol. 108 No. 2 August 2001

Input Unit: w (weeks)
Output Unit: grams
Min. Range: 22.0 weeks
Max. Range: 43.0 weeks

Age	FW (gram)		
(weeks)	5%	50%	95%
22	368	490	627
23	434	589	762
24	498	690	902
25	557	795	1048
26	614	908	1200
27	677	1033	1358
28	752	1173	1532
29	845	1332	1729
30	959	1507	1955
31	1098	1698	2209
32	1266	1906	2478
33	1460	2127	2750
34	1677	2360	3029
35	1907	2600	3318
36	2144	2845	3604
37	2384	3080	3857
38	2605	3290	4065
39	2786	3465	4232
40	2927	3613	4382
41	3025	3733	4512
42	3070	3815	4631
43	3081	3864	4747

1-5-17 FWg Osaka

Reference: Vol. 37. No. 10. 1988

GA	EFW (g)		GA	EFW (g)		GA	EFW (g)		GA	EFW (g)		GA	EFW (g)	
(w+d)	mean	±1SD	(w+d)	mean	±1SD	(w+d)	mean	±1SD	(w+d)	mean	±1SD	(w+d)	mean	±1SD
16w0d	137	29	20w6d	413	58	25w5d	930	120	30w4d	1663	197	35w3d	2502	285
16w1d	142	29	21w0d	425	60	25w6d	949	123	30w5d	1687	200	35w4d	2527	288
16w2d	147	29	21w1d	436	61	26w0d	968	125	30w6d	1711	202	35w5d	2551	290
16w3d	153	29	21w2d	449	63	26w1d	987	127	31w0d	1735	204	35w6d	2576	293
16w4d	158	30	21w3d	461	65	26w2d	1007	129	31w1d	1759	207	36w0d	2600	296
16w5d	164	30	21w4d	474	66	26w3d	1026	131	31w2d	1783	209	36w1d	2624	299
16w6d	170	30	21w5d	486	68	26w4d	1046	133	31w3d	1808	212	36w2d	2648	302
17w0d	176	31	21w6d	499	69	26w5d	1066	135	31w4d	1832	214	36w3d	2672	305
17w1d	182	31	22w0d	513	71	26w6d	1086	138	31w5d	1857	217	36w4d	2696	308
17w2d	188	32	22w1d	526	73	27w0d	1106	140	31w6d	1881	219	36w5d	2720	311
17w3d	195	33	22w2d	540	74	27w1d	1127	142	32w0d	1906	222	36w6d	2744	314
17w4d	202	33	22w3d	553	76	27w2d	1147	144	32w1d	1930	224	37w0d	2767	317
17w5d	209	34	22w4d	568	78	27w3d	1168	146	32w2d	1955	227	37w1d	2791	320
17w6d	216	35	22w5d	582	80	27w4d	1189	149	32w3d	1980	229	37w2d	2814	323
18w0d	223	35	22w6d	596	81	27w5d	1210	151	32w4d	2005	232	37w3d	2837	326
18w1d	231	36	23w0d	611	83	27w6d	1232	153	32w5d	2029	234	37w4d	2860	329
18w2d	238	37	23w1d	626	85	28w0d	1253	155	32w6d	2054	237	37w5d	2883	332
18w3d	246	38	23w2d	641	87	28w1d	1275	158	33w0d	2079	239	37w6d	2906	335
18w4d	254	39	23w3d	656	89	28w2d	1296	160	33w1d	2104	242	38w0d	2928	339
18w5d	263	40	23w4d	672	91	28w3d	1318	162	33w2d	2129	244	38w1d	2950	342
18w6d	271	41	23w5d	688	92	28w4d	1340	164	33w3d	2154	247	38w2d	2973	345
19w0d	280	42	23w6d	704	94	28w5d	1363	167	33w4d	2179	250	38w3d	2995	348
19w1d	289	43	24w0d	720	96	28w6d	1385	169	33w5d	2204	252	38w4d	3016	352
19w2d	298	44	24w1d	736	98	29w0d	1407	171	33w6d	2229	255	38w5d	3038	355
19w3d	308	45	24w2d	753	100	29w1d	1430	174	34w0d	2254	257	38w6d	3059	358
19w4d	317	46	24w3d	770	102	29w2d	1453	176	34w1d	2279	260	39w0d	3080	362
19w5d	327	48	24w4d	787	104	29w3d	1476	178	34w2d	2304	263	39w1d	3101	365
19w6d	337	49	24w5d	804	106	29w4d	1499	181	34w3d	2329	265	39w2d	3121	369
20w0d	347	50	24w6d	822	108	29w5d	1522	183	34w4d	2354	268	39w3d	3142	372
20w1d	358	51	25w0d	839	110	29w6d	1545	185	34w5d	2379	271	39w4d	3162	376
20w2d	368	53	25w1d	857	112	30w0d	1568	188	34w6d	2403	274	39w5d	3182	379
20w3d	379	54	25w2d	875	114	30w1d	1592	190	35w0d	2428	276	39w6d	3201	383
20w4d	390	56	25w3d	893	116	30w2d	1615	192	35w1d	2453	279	40w0d	3220	387
20w5d	401	57	25w4d	912	118	30w3d	1639	195	35w2d	2478	282			

1-5-18 FWg Persson

GA (d)	FW (g)	GA (d)	FW (g)	GA (d)	FW (g)	GA (d)	FW (g)
160	530	200	1.306	240	2.407	280	3.543
161	545	201	1.330	241	2.441	281	3.571
162	560	202	1.355	242	2.466	282	3.586
163	575	203	1.380	243	2.496	283	3.611
164	589	204	1.405	244	2.522	284	3.629
165	604	205	1.432	245	2.549	285	3.655
166	618	206	1.461	246	2.576	286	3.673
167	634	207	1.488	247	2.608	287	3.699
168	649	208	1.516	248	2.639	288	3.717
169	666	209	1.544	249	2.667	289	3.743
170	682	210	1.571	250	2.694	290	3.758
171	700	211	1.598	251	2.723	291	3.784
172	717	212	1.627	252	2.750	292	3.802
173	734	213	1.655	253	2.779	293	3.823
174	751	214	1.681	254	2.807	294	3.842
175	768	215	1.710	255	2.836	295	3.861
176	785	216	1.737	256	2.864	296	3.878
177	803	217	1.764	257	2.894	297	3.895
178	822	218	1.795	258	2.923	298	3.911
179	842	219	1.822	259	2.948	299	3.927
180	862	220	1.850	260	2.877	300	3.944
181	882	221	1.882	261	3.002		
182	901	222	1.910	262	3.032		
183	920	223	1.939	263	3.062		
184	940	224	1.965	264	3.092		
185	960	225	1.991	265	3.123		
186	980	226	2.015	266	3.153		
187	1.002	227	2.044	267	3.185		
188	1.025	228	2.069	268	3.215		
189	1.047	229	2.099	269	3.247		
190	1.070	230	2.126	270	3.278		
191	1.092	231	2.152	271	3.311		
192	1.114	232	2.185	272	3.337		
193	1.137	233	2.212	273	3.366		
194	1.159	234	2.247	274	3.389		
195	1.182	235	2.264	275	3.413		
196	1.206	236	2.288	276	3.441		
197	1.232	237	2.316	277	3.466		
198	1.256	238	2.345	278	3.489		
199	1.282	239	2.378	279	3.519		

1-5-19 FWg Persson

Reference: Intrauterine growth curves based on ultrasonically estimated foetal weights;
K Marsal, P-H Persson, T Larsen, H Lilja, A Selbing and B Sultan;
Acta Paediatr 85: 843-8.1996;

Mean curve:

$$FW = -2,278843 \times 10^{-6} \times GA^4 + 1,402168 \times 10^{-3} \times GA^3 - 0,2008726 \times GA^2 + 9,284121 \times GA - 4,125956$$

Input Unit: GA (in days)
Output Unit: FW (in g)
Min. Range: 175 days
Max. Range: 300 days

±2SD ±24% of the mean

1-5-20 FWg Shinozuka

Reference: Shinozuka N., Masuda H., Kagawa H., Taketani Y.
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry "
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

GA (weeks)	FW (gram)			GA (weeks)	FW (gram)		
	- 1.64SD	mean	+ 1.64SD		- 1.64SD	mean	+ 1.64SD
18	158	216	274	30	1234	1552	1870
19	204	279	355	31	1375	1720	2064
20	256	349	442	32	1520	1892	2265
21	314	427	539	33	1667	2068	2469
22	381	513	645	34	1814	2244	2675
23	456	609	761	35	1960	2420	2880
24	541	714	888	36	2102	2592	3083
25	634	830	1026	37	2236	2758	3280
26	737	956	1175	38	2360	2915	3469
27	849	1092	1334	39	2471	3059	3647
28	970	1237	1504	40	2565	3187	3809
29	1099	1391	1683	41	2639	3296	3952

1-5-21 FWg Shinozuka

Reference: *Shinozuka N., Masuda H., Kagawa H., Taketani Y.*
Department of Obstetrics and Gynecology, Faculty of Medicine, University of Tokyo
"Standard Values of Ultrasonographic Fetal Biometry "
Jpn J Med Ultrasonics 23 (12) 877-888; 1996

Used for SD Display (on System ± 1.64SD is used)

$$\pm 1SD = 2{,}089 \bullet GA \bullet 10^{-1} + 0{,}049 \bullet GA^{2} \bullet 10^{-1} \neg 74$$

(see Table 1 in Reference above) GA in days, 1SD in g

Table based on Age Table (2.4.4)

The SD values in the table below are calculated using the formula above.

GA (w+d	FW(g)		GA (w+d	FW(g)	
	mean	±1SD		mean	±1SD
19+3	250	45	31+2	1650	207
20+0	300	51	31+4	1700	211
20+4	350	58	31+6	1750	216
21+2	400	66	32+1	1800	221
21+5	450	71	32+3	1850	226
22+2	500	78	32+5	1900	231
22+6	550	85	33+0	1950	236
23+2	600	90	33+1	2000	238
23+6	650	98	33+3	2050	243
24+2	700	103	33+5	2100	248
24+5	750	109	34+0	2150	253
25+2	800	116	34+2	2200	258
25+5	850	122	34+4	2250	264
26+1	900	128	34+6	2300	269
26+4	950	134	35+1	2350	274
26+6	1000	138	35+3	2400	279
27+2	1050	145	35+5	2450	284
27+5	1100	151	36+0	2500	290
28+0	1150	155	36+2	2550	295
28+3	1200	162	36+4	2600	301
28+5	1250	166	36+6	2650	306
29+1	1300	173	37+2	2700	314
29+3	1350	177	37+4	2750	320
29+5	1400	181	37+6	2800	325
30+0	1450	186	38+1	2850	331
30+2	1500	191	38+4	2900	340
30+5	1550	197	38+6	2950	345
31+0	1600	202	39+2	3000	354

1-5-22 FWg Tokyo

Reference: Norio Shinozuk, M.D., Takashi Okai, M.D.,Shiro Kohzuma, M.D., Masaaki Mukuba, M.D., Chen-Ting Shin, M.D.,Tsugio Maeda, M.D., Yoshinori Kuwabara, M.D. and Masahiko Mizuni, M.D. "Formulas for fetal weight estimation by ultrasound measurements based on neonatal specific gravities and volumes"; American Journal of Obstetrics and Gynecology, St. Louis; Vol. 157, No. 5, pp. 1140-1145, Nov., 1987

95%	$Y = -323,7 \times G + 1,586 \times G^2 - 2,326 \times G^3 \times 10^{-3} + 21584,32$
50%	$Y = -0,1448 \times G^2 + 6,050 \times G^4 \times 10^{-6} - 1,421 \times G^5 \times 10^{-8} + 1867,83$
5%	$Y = 4,615 \times G^2 - 4,137 \times G^3 \times 10^{-2} + 1,384 \times G^4 \times 10^{-4} - 1,625 \times G^5 \times 10^{-7} - 22104,91$

G: GA - Gestational Age (days) derivered from LMP; range: 161 ~ 287 (23 ... 41 weeks)
Y: FBW - Fetal Birth Weight (gram)

NOTE: FWg is implemented as table below, values derived from 95%, 50% and 5% formulas above!

GA	FW (gram)			GA	FW (gram)			GA	FW (gram)			GA	FW (gram)			GA	FW (gram)		
(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%	(days)	5%	50%	95%
161	284	642	872	187	831	953	1303	213	1121	1521	2114	239	1582	2256	3060	265	2265	2965	3895
162	317	649	879	188	844	970	1329	214	1133	1547	2149	240	1606	2285	3095	266	2291	2988	3921
163	348	656	886	189	856	988	1355	215	1146	1574	2185	241	1629	2314	3131	267	2316	3010	3947
164	379	664	895	190	867	1006	1382	216	1160	1600	2221	242	1654	2343	3166	268	2340	3032	3973
165	408	672	904	191	879	1025	1409	217	1174	1627	2257	243	1679	2373	3201	269	2364	3053	3998
166	436	681	914	192	890	1044	1437	218	1188	1654	2293	244	1704	2402	3236	270	2387	3074	4022
167	463	689	925	193	901	1063	1465	219	1202	1681	2329	245	1729	2431	3271	271	2410	3095	4046
168	489	699	937	194	912	1083	1494	220	1217	1709	2365	246	1755	2460	3305	272	2432	3114	4069
169	514	708	950	195	923	1103	1523	221	1232	1736	2402	247	1781	2488	3340	273	2453	3133	4091
170	538	719	963	196	933	1123	1553	222	1248	1764	2438	248	1807	2517	3374	274	2473	3152	4113
171	561	729	977	197	944	1144	1583	223	1264	1792	2475	249	1833	2545	3407	275	2493	3169	4135
172	583	740	992	198	954	1165	1614	224	1281	1820	2512	250	1860	2574	3441	276	2511	3186	4155
173	605	751	1008	199	965	1187	1645	225	1298	1849	2548	251	1887	2602	3474	277	2528	3202	4175
174	625	763	1025	200	975	1209	1676	226	1315	1877	2585	252	1914	2630	3506	278	2544	3218	4194
175	645	775	1042	201	986	1231	1708	227	1333	1906	2622	253	1941	2657	3539	279	2559	3232	4213
176	664	788	1060	202	996	1253	1740	228	1351	1934	2659	254	1968	2685	3571	280	2572	3246	4230
177	682	801	1079	203	1006	1276	1773	229	1370	1963	2696	255	1996	2712	3602	281	2584	3259	4247
178	700	814	1098	204	1017	1299	1806	230	1389	1992	2732	256	2023	2739	3633	282	2595	3271	4264
179	716	828	1119	205	1028	1323	1839	231	1409	2021	2769	257	2051	2765	3664	283	2604	3283	4279
180	733	842	1139	206	1039	1347	1872	232	1429	2050	2806	258	2078	2792	3695	284	2611	3293	4294
181	748	857	1161	207	1050	1371	1906	233	1449	2080	2842	259	2105	2817	3725	285	2617	3302	4308
182	763	872	1183	208	1061	1395	1940	234	1470	2109	2879	260	2132	2843	3754	286	2620	3311	4321
183	778	887	1206	209	1072	1420	1974	235	1492	2138	2915	261	2159	2868	3783	287	2622	3318	4333
184	792	903	1229	210	1084	1445	2009	236	1514	2168	2951	262	2186	2893	3812				
185	805	919	1253	211	1096	1470	2044	237	1536	2197	2988	263	2213	2917	3840				
186	818	936	1278	212	1108	1496	2079	238	1559	2226	3024	264	2239	2941	3868				

1-5-23 FWg Williams

Reference: Ronald Williams, Robert Creasy, George Cunningham, Warren Hawes, Rank Norris, Michiko Tashiro „Fetal Growth and Perinatal Viability in California“
Obstetric & Gynecology Vol. 59, NO. 5, May 1982

The weight values of this table are arithmetic mean values of the male- and female values from the reference. Separated male/female weight values are not supported by the system.

GA (weeks)	FW (gram)		
	10%	50%	90%
22	320	513	746
23	365	589	861
24	417	675	989
25	477	773	1132
26	546	882	1289
27	627	1005	1463
28	720	1143	1653
29	829	1298	1859
30	955	1484	2136
31	1100	1695	2402
32	1284	1920	2673
33	1499	2155	2910
34	1728	2394	3132
35	1974	2628	3333
36	2224	2849	3521
37	2455	3052	3706
38	2642	3227	3867
39	2790	3364	3994
40	2881	3462	4080
41	2946	3524	4127
42	3011	3589	4185
43	3044	3626	4221
44	3043	3633	4233
45	3009	3611	4224
46	2941	3560	4191
47	2844	3482	4136
48	2720	3377	4059

1-5-24 FWg Yarkoni (TWINS)

Reference: Yarkoni S., Reece EA, Holford T, O'Connor TZ, Hobbins JC: Estimated fetal weight in the evaluation of growth in twin gestations: a prospective longitudinal study. Obtet. Gynecol. 69:636, 1987

Age (weeks	FW (gram)		
	5%	50%	95%
16	132	154	207
17	173	215	249
18	214	276	291
19	223	300	412
20	232	324	534
21	275	432	705
22	319	540	876
23	347	598	880
24	376	656	885
25	549	793	1118
26	722	931	1352
27	755	1087	1563
28	789	1244	1774
29	900	1395	1883
30	1011	1546	1992
31	1198	1693	2392
32	1385	1840	2793
33	1491	2032	3000
34	1597	2224	3208
35	1703	2427	3336
36	1809	2631	3465
37	2239	2824	3679
38	2669	3017	3894

Section 1-6
Fetal Ratios

The Fetal Ratios are displayed in the OB Patient Report, if:
• required measurements are done and
• ratio display is enabled in “Measurement Setup”

Other conditions (e.g., GA by LMP necessary, etc.) see Ratio descriptions!

1-6-1 CI (BPD/OFD) Hadlock

Reference: *Hadlock, F., Deter, R., Carpenter, R., Park, D.*
“Estimating Fetal Age: effect of Head Shape on BIP”.
American Journal of Roentgenology, 137: 83-85, July 1981

Inputs: BPD, OFD (cm)

Output: Ratio (%)

Norm value range:(70 - 86%)

$$CI = \frac{BPD}{OFD} \times 100$$

1-6-2 FL/AC Hadlock

Reference: *Hadlock F., Deter R., Harrist R., Roecker E., Park S., “A Date-Independent Predictor of Intrauerine Growth Retardation: Femur Length/Abdominal Circumference Ratio”. American Journal of Roentgenology, 141:979-984, November 1983.*

Inputs: FL, AC (cm)

Output: Ratio (%)

Norm value range:(20 - 24%)

$$FL\backslash\mathrm{AC} = \frac{FL}{AC} \times 100$$

1-6-3 FL/BPD Hohler

Reference: *Hohler C.W., Quetel, T:A:*
"Comparison of Ultrasound Femur Length and Biparietal Diameter in Late pregnancy.
American Journal of Obstetrics and Gynecology, volume 14, No. 7: 759-762, 1-Dec.-1981

Inputs: FL, BPD (cm)
Output: Ratio (%)
Range of GA *): Min: 22 week
Max. 40 week
Norm value range:(71 - 87%)

$$FL\backslash\mathrm{BPD} = \frac{FL}{BPD} \times 100$$

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: FL/BPD xxx% (GA OOR)

1-6-4 FL/HC Hadlock

Reference: *Hadlock,F.P.,Harrist,R.B.,Shah,Y.,Park,S.K.," The femur length/head circumference relation in obstetric sonography" J Ultrasound Med 1984, 3: 439-442 (Fetal Growth)*

Inputs: FL, HC (cm)
Output: Ratio (%)
Range of GA *): Min: 15 week
Max. 42 week
± 1SD

$$FL\backslash\mathrm{HC} = \frac{FL}{HC} \times 100$$

GA (weeks)	FL/HC (%)		GA (weeks)	FL/HC (%)		GA (weeks)	FL/HC (%)	
	Min	Max		Min	Max		Min	Max
<15	n/a	——	24	18.7	20.9	34	19.4	21.8
15	15.3	17.1	25	18.7	20.3	35	20.1	22.3
16	13.3	16.5	26	18.6	20.4	36	20.1	22.1
17	14.6	17.6	27	18.6	20.4	37	20.8	22.6
18	15.8	18.0	28	18.8	20.6	38	20.9	22.7
19	16.1	18.3	29	19.6	20.8	39	20.6	23.4
20	16.8	19.8	30	19.2	21.4	40	20.7	22.5
21	15.9	20.3	31	19.3	21.3	41	21.6	23.2
22	18.4	20.2	32	19.1	21.3	42	20.1	23.9
23	19.2	20.8	33	19.9	21.5	>42	n/a	n/a

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: FL/HC xxx% (GA OOR)

1-6-5 HC/AC Campbell

Reference: Campbell S., "Ultrasound Measurement of Fetal Head and Abdomen Circumference Ratio in the Assessment of Growth Retardation".
Obstetrics and Gynaecology, Vol 84, 165- 174, March 1977.

Inputs: HC, AC (cm)
Output: Ratio (%)
Valid Range: Min: 13week - Max: 42week
Norm value range: see table (dependent on GA (LMP)

$$HC\backslash\mathrm{AC} = \frac{HC}{AC}$$

GA (weeks)	HC/AC Ratio		
	5%	50%	95%
13	1.14	1.23	1.31
14	1.14	1.23	1.31
15	1.05	1.22	1.39
16	1.05	1.22	1.39
17	1.07	1.18	1.29
18	1.07	1.18	1.29
19	1.09	1.18	1.26
20	1.09	1.18	1.26
21	1.06	1.15	1.25
22	1.06	1.15	1.25
23	1.05	1.13	1.21
24	1.05	1.13	1.21
25	1.04	1.13	1.22
26	1.04	1.13	1.22
27	1.05	1.13	1.22
28	1.05	1.13	1.22
29	0.99	1.10	1.21
30	0.99	1.10	1.21
31	0.96	1.07	1.17
32	0.96	1.07	1.17
33	0.96	1.04	1.11
34	0.96	1.04	1.11
35	0.93	1.02	1.11
36	0.93	1.02	1.11
37	0.92	0.98	1.05
38	0.92	0.98	1.05
39	0.87	0.97	1.06
40	0.87	0.97	1.06
41	0.93	0.96	1.0
42	0.93	0.96	1.0

1-6-6 Va/Hem Hansmann

Reference: *Hansmann M, Hackelöer BJ, Staudach A. Ultrasound Diagnosis in Obstetrics and Gynecology. Berlin, Heidelberg, New York, Tokyo: Springer, 1986*

Inputs: Va, Hem (cm)
Output: Ratio (%)
Range of GA *): Min: 12 week
Max. 26 week
Value range: see table [dependent on GA *)]

$$Va\backslash\mathrm{Hem} = \frac{Va}{Hem} \times 100$$

Table: Normal range for anterior cerebral ventricle to hemisphere diameter ratio.

GA (weeks)	Va/Hem (%)			GA (weeks)	Va/Hem (%)		
	10%	50%	90%		10%	50%	90%
12	77	85	94	27	26	31	37
13	69	78	86	28	25	31	37
14	62	71	79	29	25	31	36
15	54	64	74	30	25	31	36
16	47	59	70	31	25	31	36
17	42	54	65	32	25	31	36
18	38	49	61	33	25	31	37
19	35	46	56	34	25	31	37
20	32	42	52	35	25	31	36
21	29	40	51	36	26	31	36
22	26	37	49	37	26	31	36
23	26	36	45	38	25	30	35
24	26	34	42	39	25	30	35
25	27	33	39	40	24	29	34
26	27	32	37				

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: Va/Hem xxx% (GA OOR)

1-6-7 Va/Hem Nicolaides

Reference: *R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48*

Inputs: Va, Hem (cm)
Output: Ratio (%)
Range of GA *): Min: 14 week
Max. 39 week
Value range: see table [dependent on GA *)]

$$Va\backslash\text{Hem} = \frac{Va}{Hem}$$

Table: Normal range for anterior cerebral ventricle to hemisphere diameter ratio.

GA (weeks)	Va/Hem (%)			GA (weeks)	Va/Hem (%)		
	5%	50%	95%		5%	50%	95%
14	0.39	0.47	0.56	27	0.19	0.23	0.28
15	0.36	0.43	0.51	28	0.19	0.23	0.27
16	0.33	0.40	0.48	29	0.19	0.22	0.27
17	0.31	0.37	0.44	30	0.18	0.22	0.26
18	0.29	0.35	0.41	31	0.18	0.21	0.26
19	0.27	0.32	0.39	32	0.18	0.21	0.26
20	0.26	0.31	0.37	33	0.18	0.21	0.25
21	0.24	0.29	0.35	34	0.17	0.21	0.25
22	0.23	0.28	0.33	35	0.17	0.21	0.25
23	0.22	0.27	0.32	36	0.17	0.21	0.25
24	0.21	0.26	0.31	37	0.17	0.21	0.25
25	0.21	0.25	0.30	38	0.17	0.21	0.25
26	0.20	0.24	0.29	39	0.17	0.21	0.25

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: Va/Hem xxx% (GA OOR)

1-6-8 Vp/Hem Nicolaides

Reference: *R. J. M. Snijders and K. H. Niicolaides; "Fetal biometry at 14-40 weeks' gestation" Ultrasound Obstet. Gynecol. 4 (1994) 34-48*

Inputs: Vp, Hem (cm)
Output: Ratio (%)
Range of GA *): Min: 14 week
Max. 39 week
Value range: see table [dependent on GA *)]

$$Vp\backslash\mathrm{Hem} = \frac{Vp}{Hem}$$

Table: Normal range for anterior cerebral ventricle to hemisphere diameter ratio.

GA (weeks)	Vp/Hem (%)			GA (weeks)	Vp/Hem (%)		
	5%	50%	95%		5%	50%	95%
14	0.36	0.45	0.56	27	0.18	0.22	0.27
15	0.34	0.42	0.52	28	0.17	0.21	0.26
16	0.31	0.39	0.48	29	0.17	0.21	0.26
17	0.29	0.36	0.45	30	0.16	0.20	0.25
18	0.27	0.34	0.42	31	0.16	0.20	0.24
19	0.26	0.32	0.40	32	0.16	0.19	0.24
20	0.24	0.30	0.37	33	0.15	0.19	0.24
21	0.23	0.29	0.35	34	0.15	0.19	0.24
22	0.22	0.27	0.34	35	0.15	0.19	0.24
23	0.21	0.26	0.32	36	0.15	0.19	0.24
24	0.20	0.25	0.31	37	0.15	0.19	0.24
25	0.19	0.24	0.29	38	0.15	0.19	0.24
26	0.18	0.23	0.28	39	0.15	0.19	0.24

NOTE: If GA *) is out of range (GA OOR) no min. and max. values are displayed!
Display: Vp/Hem xxx% (GA OOR)

1-6-9 VCAD/Z-Scores Baschart

Reference: *Schneider C. et al., "Development of Z-scores for fetal cardiac dimensions from echo-cardiography", Ultrasound Obstet Gynecol. Vol. 26, 2005, pages 599-605.*

Inputs FL, GA or BPD
Output Z-scores

ln (predicted cardiac dimension) = m*ln(FL, GA or BPD) + c

Z-score = (ln(actual) - ln(predicted cardiac dimension))/ root MSE

1-6-10 LHR (Peralta)

Reference: *Ultrasound Obst Gynecol 2005; 26: 718-724*
published online in Wiley InterSience (www.interscience.wiley.com). DOI: 10.1002/uog.2651

Input: Lung area [mm²] and HC [mm]
Output: Ratio LHR
Value range: min: 12 weeks / max: 32 weeks

LHR= Lung Area/Head CIRC:

Left Lung					Right Lung			
GA	**LHR Ratio**				**GA**	**LHR Ratio**		
(Week)	**2.5%**	**50%**	**97.5%**		**(Week)**	**2.5%**	**50%**	**97.5%**
12	0.21	0.38	0.54		12	0.21	0.53	0.85
13	0.31	0.50	0.69		13	0.37.	0.72	1.07
14	0.40	0.62	0.84		14	0.51	0.90	1.29
15	0.49	0.74	0.98		15	0.65	1.08	1.50
16	0.57	0.85	1.12		16	0.79	1.25	1.70
17	0.65	0.95	1.26		17	0.92	1.41	1.90
18	0.73	1.06	1.38		18	1.04	1.56	2.09
19	0.80	1.15	1.51		19	1.15	1.71	2.28
20	0.86	1.25	1.63		20	1.26	1.86	2.45
21	0.92	1.33	1.74		21	1.36	1.99	2.62
22	0.98	1.42	1.86		22	1.45	2.12	2.79
23	1.03	1.50	1.96		23	1.54	2.24	2.95
24	1.08	1.57	2.06		24	1.62	2.36	3.10
25	1.12	1.64	2.16		25	1.70	2.47	3.24
26	1.16	1.71	2.25		26	1.76	2.57	3.38
27	1.19.	1.77	2.34		27	1.83	2.67	3.51
28	1.22	1.82	2.42		28	1.88	2.76	3.64
29	1.25	1.87	2.50		29	1.93	2.84	3.75
30	1.27	1.92	2.58		30	1.97	2.92	3.86
31	1.28	1.96	2.65		31	2.01	2.99	3.97
32	1.29	2.00	2.71		32	2.03	3.05	4.07

1-6-11 LTR (Hasegawa)

Reference: *Ultrasound Obst Gynecol 2005; 26: 718-724*
published online in Wiley InterSience (www.interscience.wiley.com). DOI: 10.1002/uog.2651

Input:	Lung area [mm²] and Thorax Area [mm²]
Output:	Ratio LHR
Valid Range	no limitation in publication

LTR = Lung Area/Thorax Area (where Lung area = Rt_LungA + Lt_LungA)

1-6-12 CVR (Peranteau)

Reference: *Fetal Diagn Ther 2007;22:365–371; DOI: 10.1159/000103298*
Received: June 20, 2006; Accepted: July 27, 2006; Published online: June 5, 2007

Input:	CCAM Volume [cm³] and HC [cm]
Output:	Ratio LHR
Valid Range:	no limitation in publication

CVR = CCAM/HC

Section 1-7
Reference & Formulas

1-7-1 Abdominal Circumference derived (AC*)

Reference: Bronstein-Semendjajew; Taschenbuch der Mathematik; 1979; 2.6.6.; 223

$$Calc0 = \frac{APAD}{2} + \frac{TAD}{2}$$

$$Calc1 = \frac{APAD}{2} \times \frac{TAD}{2}$$

$$AC(derived) = \pi \times (1,5 \times Calc0 - \sqrt{Calc1})$$

1-7-2 CUA: Formulas

Reference: Hadlock,F.P., Deter,R.L., Harrist,R.B., Park,S.K.," Estimating fetal age: computer-assisted analysis of multiple fetal growth parameters", Radiology Vol. 152 No. 2, 1984, pages 497-501.

$$CUA(BPD) = 9,54 + 1,482 \cdot BPD + 0,1676 \cdot BPD^2$$

$$CUA(HC) = 8,96 + 0,54 \cdot HC + 0,0003 \cdot HC^3$$

$$CUA(AC) = 8,14 + 0,753 \cdot AC + 0,0036 \cdot AC^2$$

$$CUA(FL) = 10,35 + 2,460 \cdot FL + 0,170 \cdot FL^2$$

$$CUA(BPD, HC) = 10,32 + 0,009 \cdot HC^2 + 1,3200 \cdot BPD + 0,00012 \cdot HC^3$$

$$CUA(BPD, AC) = 9,57 + 0,524 \cdot AC + 0,1220 \cdot BPD^2$$

$$CUA(BPD,FL) = 10,50 + 0,197 \cdot BPD \bullet FL + 0,9500 \cdot FL + 0,7300 \cdot BPD$$

$$CUA(HC,AC) = 10,31 + 0,012 \cdot HC^2 + 0,3850 \cdot AC$$

$$CUA(HC,FL) = 11,19 + 0,070 \cdot HC \bullet FL + 0,2630 \cdot HC$$

$$CUA(AC,FL) = 10,47 + 0,442 \cdot AC + 0,3140 \cdot FL^2 - 0,0121 \bullet FL^3$$

$$CUA(BPD,HC,AC) = 10,58 + 0,005 \cdot HC^2 + 0,3635 \cdot AC + 0,02864 \cdot BPD \bullet AC$$

$$CUA(BPD,HC,FL) = 11,38 + 0,070 \cdot HC \bullet FL + 0,9800 \cdot BPD$$

$$CUA(BPD,AC,FL) = 10,61 + 0,175 \cdot BPD \bullet FL + 0,2970 \cdot AC + 0,7100 \cdot FL$$

$$CUA(HC,AC,FL) = 10,33 + 0,031 \cdot HC \bullet FL + 0,3610 \cdot HC + 0,0298 \cdot AC \bullet FL$$

$$CUA(BPD,HC,AC,FL) = 10,85 + 0,060 \cdot HC \bullet FL + 0,6700 \cdot BPD + 0,1680 \cdot AC$$

1-7-3 Head Circumference derived (HC*)

Reference: Bronstein-Semendjajew; Taschenbuch der Mathematik; 1979; 2.6.6.; 223)

$$Calc0 = \frac{BPD}{2} + \frac{OFD}{2}$$

$$Calc1 = \frac{BPD}{2} \times \frac{OFD}{2}$$

$$HC(Calculated) = \pi \times (1,5 \times Calc0 - \sqrt{Calc1})$$

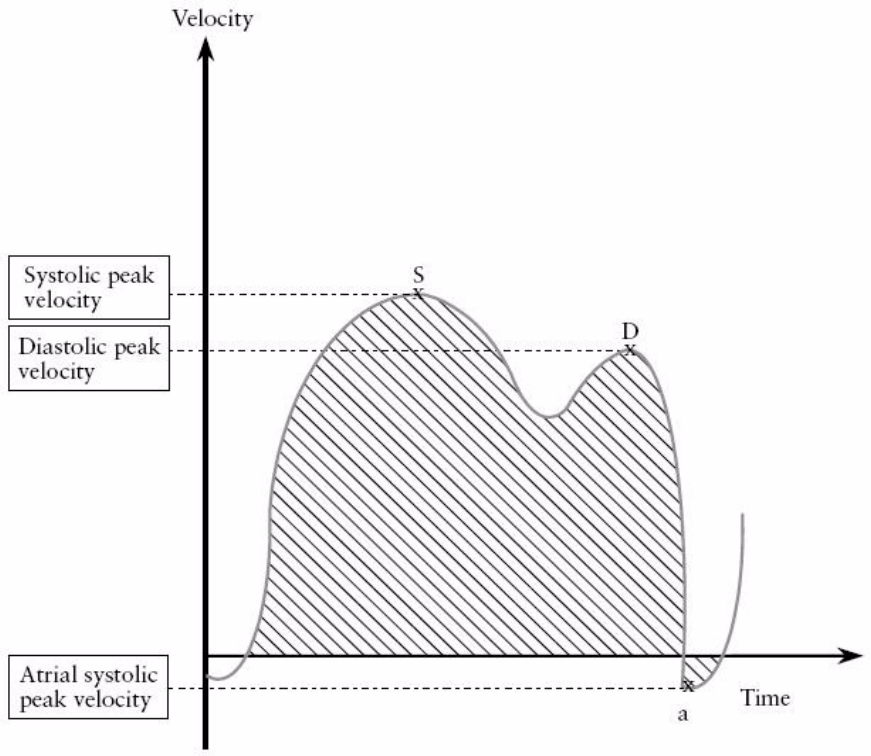
1-7-4 Umbilical Vein Flow

Reference: T. Vimpeli; "Fetal cardiac output and its distribution to the placenta at 11–20 weeks of gestation"; Ultrasound Obstet Gynecol 2009; Vol. 33, pages 265–271.

$$UmbVeinFlow\left[\frac{ml}{min}\right] = \pi \times \left(\frac{Diameter}{2}\right)^2 \times 0,5 \times 60$$

1-7-5 VENOSUS FLOW

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.



S...Systolic peak
D...Diastolic peak
a...Atrial systolic peak velocity

Figure 1 Schematic representation of a venous flow velocity waveform and definition of Doppler indices reported in the literature. a, atrial systolic peak flow velocity; D, diastolic peak blood flow velocity; DV ductus venosus; PLI, preload index; s, systolic peak blood flow velocity; TAMX, time-averaged maximum velocity.

Ductus Venosus:	**Inverior Vena Cava (IVC):**
DV PLI = (S - a)/S	IVC PLI = a/S
DV S/A = S/a	IVC S/A = S/a
PVIV = (S - a)/D	IVC PVIV = (S - a)/D
PIV = (S - a)/ TAMX	IVC PIV= (S - a)/TAmax

Chapter 2
Cardiac References

Section 2-1
Cardiology 2D-Mode

2-1-1 BSA (Body Surface Area)

BSA is calculated by entering the patient´s weight and height by using the “Patient Information” window.

$$BSA = H^{0,725} \times W^{0,425} \times 0,007184$$

H	Height	(cm)
W	Weight	(kg)
BSA	Body Surface Area	(m^2)

Reference: Grossman W."Cardiac Catheterization and Angiography." Blood Flow Measurement: Hemodynamic Principles, 1980. Chapter8, page90..

2-1-2 Simpson´s Method

Simpson’s protocol is used for calculation left ventricular volume from measurements taken in one or two scan planes. The calculation of volume for both methods (2-chamber or the 4-chamber view) results from summation of areas from diameters of 20 cylinders or discs of equal height, apportioned over the left ventricular length.

2-1-2-1 LV Single Plane (Simpson)

$$EDV_{A4C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2 \qquad ESV_{A4C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2$$

$$SV_{A4C} = EDV_{A4C} - ESV_{A4C} \qquad EF_{A4C} = \frac{EDV_{A4C} - ESV_{A4C}}{EDV_{A4C}} \cdot 100$$

$$CO_{A4C} = \frac{SV_{A4C} \times HR}{1000}$$

$$EDV_{A2C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2 \qquad ESV_{A2C} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i^2$$

$$SV_{A2C} = EDV_{A2C} - ESV_{A2C} \qquad EF_{A2C} = \frac{EDV_{A2C} - ESV_{A2C}}{EDV_{A2C}} \cdot 100$$

$$CO_{A2C} = \frac{SV_{A2C} \times HR}{1000}$$

LVLD…	Left ventricle long axis diastole	(cm)
EDV_{A4C}	End diastolic volume (4 camber view)	(ml)
ESV_{A4C}	End systolic volume (4 camber view)	(ml)
EDV_{A2C}	End diastolic volume (2 chamber view)	(ml)
ESV_{A2C}	End systolic volume (2 chamber view)	(ml)
SV_{A4C}	Stroke Volume (4 camber view)	(ml)
SV_{A2C}	Stroke Volume (2 camber view)	(ml)
EF_{A4C}	Ejection Fraction (4 camber view)	[%]
EF_{A2C}	Ejection Fraction (2 camber view)	[%]
HR	Heart Rate	[bpm]
CO_{A4C}	Cardiac output (4 camber view)	[l/min]
CO_{A2C}	Cardiac output (4 camber view)	[l/min]

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

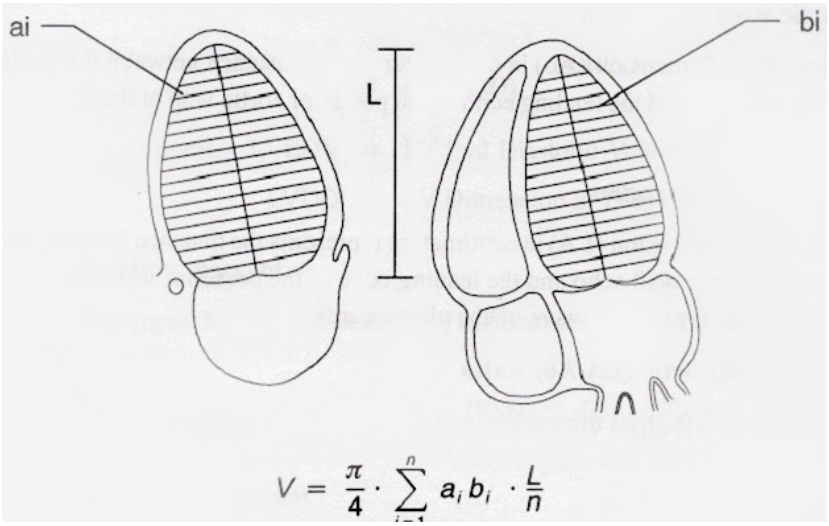
2-1-2-2 LV Bi Plane (Simpson)

$$EDV_{BiPlane} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i \cdot b_i \qquad ESV_{BiPlane} = \frac{\pi}{4} \cdot \frac{LVLD}{n} \cdot \sum_{i=1}^{n=20} a_i \cdot b_i$$

$$SV_{BiPlane} = EDV_{BiPlane} - ESV_{BiPlane} \qquad EF_{BiPlane} = \frac{EDV_{BiPlane} - ESV_{BiPlane}}{EDV_{BiPlane}} \cdot 100$$

$$CO_{BiPlane} = \frac{SV_{BiPlane} \times HR}{1000}$$

LVLD	Left ventricle long axis diameter	(cm)
$EDV_{BiPlane}$	End diastolic volume derived from EDV_{A4C} and EDV_{A2C}	(ml)
$ESV_{BiPlane}$	End systolic volume derived from ESV_{A4C} and ESV_{A2C}	(ml)
$SV_{BiPlane}$	Stroke volume	[ml]
$EF_{BiPlane}$	Ejection fraction	[%]
$CO_{BiPlane}$	Cardiac output	[l/min]
HR	Heart Ratr	[bpm]



Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-1-3 LV Single Plane, Area/Length (Vol A/L)

$$EDV = \frac{8}{3 \cdot \pi} \cdot \frac{LVAd^2}{LVLD} \qquad ESV = \frac{8}{3 \cdot \pi} \cdot \frac{LVAs^2}{LVLS}$$

$$SV = EDV - ESV \qquad EF = \frac{EDV - ESV}{EDV} \cdot 100$$

$$CO = \frac{SV \times HR}{1000}$$

LVLD	Left ventricle long axis, diastole[cm]	cm]
LVAd	Left ventricle area long axis, diastole	[cm²]
LVLS	Left ventricle long axis, systole	[cm]
LVAs	Left ventricle area long axis, systole	[cm²]
EDV	End diastolic volume	[ml]
ESV	End systolic volume	[ml]
SV	Stroke volume	[ml]
EF	Ejektion fraction	[%]
CO	Cardiac output	[l/min]
HR	Heart Rate	[bpm]

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-1-4 LV Single Plane

2-1-4-1 LV Single Plane (Teichholz)

$$EDV_{Teich} = \frac{7.0}{2.4 + LVDd} \cdot LVDd^3$$

$$ESV_{Teich} = \frac{7.0}{2.4 + LVDs} \cdot LVDs^3$$

$$SV_{Teich} = EDV_{Teich} - ESV_{Teich}$$

$$EF_{Teich} = \frac{EDV_{Teich} - ESV_{Teich}}{EDV_{Teich}} \cdot 100$$

$$CO_{Teich} = \frac{SV_{Teich} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	[cm]
LVDs	Left ventricle diameter, systole	[cm]
EDV_{Teich}	End diastolic volume	[ml]
ESV_{Teich}	End systolic volume	[ml]
SV_{Teich}	Stroke volume	[ml]
EF_{Teich}	Ejection fraction	[%]
CO_{Teich}	Cardiac output	[l/min]
HR	Heart Rate	[bpm]

Reference: Teichholz L.E., Kreulen T., Hermann M.V., et. al.„Problems in echocardiographic volume Determinations: echocardiographic-angiographic correlations in the presence or absence of asyngery." American Journal of Cardiology, 1976,37:1.

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-1-4-2 LV Single Plane (Cubed)

$$EDV_{Cubed} = LVDd^3 \qquad ESV_{Cubed} = LVDs^3$$

$$SV_{Cubed} = EDV_{Cubed} - ESV_{Cubed} \qquad EF_{Cubed} = \frac{EDV_{Cubed} - ESV_{Cubed}}{EDV_{Cubed}} \cdot 100$$

$$CO_{Cubed} = \frac{SV_{Cubed} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
EDV_{Cubed}	End diastolic volume	(ml)
ESV_{Cubed}	End systolic volume	(ml)
SV_{Cubed}	Stroke volume	(ml)
EF_{Cubed}	Ejection fraction	(%)
CO_{Cubed}	Cardiac output	(l/min)
HR	Heart Rate	(bpm)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

Reference: Teichholz L.E., Kreulen T., Hermann M.V., et. al.„Problems in echocardiographic volume Determinations: echocardiographic-angiographic correlations in the presence or absence of asyngery.” American Journal of Cardiology, 1976,37:1.

2-1-4-3 Fractional Shortening of Left Ventricle Internal diameter

A percent change in LV cavity dimension with systolic contraction

$$FS = \frac{LVDd - LVDs}{LVDd} \cdot 100$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
FS	Stroke Volume	(%)

Reference: Harvey Feigenbaum, "Echocardiography" , 1995 fifth edition

2-1-4-4 Left ventricular Mass (LV mass)

$$LV_{Mass} = 1.04 * \left[\left(LVDd + LVPWd + IVSd \right)^3 - LVDd^3 \right] - 13.6$$

LVDd	Left ventricle diameter, diastole	(cm)
LVPWd	Left ventricular posterior wall diameter, diastole	(cm)
IVSd	Intraventricular Septum diameter, diastole	(cm)
LV_{Mass}	Left ventricular mass	(g)

Reference: Devereux,R.B.; Reichek,N, "Echocardiographic determination of left ventricular mass in man. Anatomic validation of the method", Circulation 1977; 55; 613-618

2-1-5 Left ventricular Mass (LV mass)

$$Tmy = \sqrt{\frac{Epi_{Area}}{\pi}} - \sqrt{\frac{Endo_{Area}}{\pi}}$$

$$LVM = 1.05 \cdot \left[\left[\frac{5}{6} \cdot Epi_{Area} \cdot (LVL + Tmy) \right] - \left[\frac{5}{6} \cdot Endo_{Area} \cdot LVL \right] \right]$$

LVL	Left ventricle long axis diastole, endocardium	(cm)
Epi_{Area}	Area epicardium, at papillary muscles diastole (short axis)	(cm^2)
End_{Area}	Area endocardium, at papillary muscles diastole (short axis)	(cm^2)
Tmy	Thickness of myocardium (mean wall thickness)	(cm)
LVM	Left ventricular mass	(g)

Reference: Harvey Feigenbaum, " Echocardiography", 1995 fifth edition Chapter3, page 158, Lea&Febige

2-1-6 Left ventricular outflow tract (LVOT)

A percent change in LV cavity dimension with systolic contraction

$$LVOT_{Area} = \pi \cdot \frac{LVOT_{Diameter}^{2}}{4}$$

$LVOT_{Diameter}$	Left ventricular outflow tract diameter	(cm)
$LVOT_{Area}$	Left ventricular outflow tract area	(cm^2)

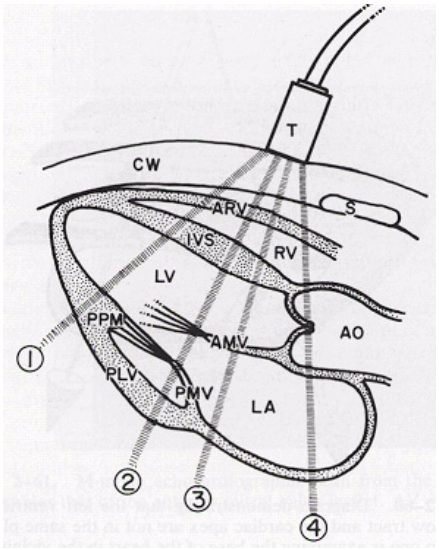
2-1-7 Left ventricular outflow tract (RVOT))

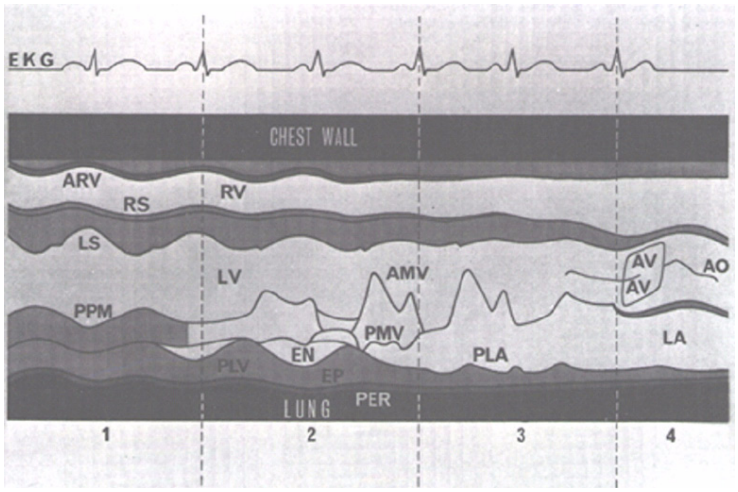
$$RVOT_{Area} = \pi \cdot \frac{RVOT_{Diameter}^{2}}{4}$$

$RVOT_{Diameter}$	Right ventricular outflow tract diameter	(cm)
$RVOT_{Area}$	Right ventricular outflow tract area	(cm^2)

Section 2-2
Cardiology M-Mode

2-2-1 Left Ventricle (LV)





Reference: Harvey Feigenbaum, " Echocardiography", 1995 fifth edition

2-2-1-1 LV-Single Plane (Teichholz)

$$EDV_{Teich} = \frac{7.0}{2.4 + LVDd} \cdot LVDd^3$$

$$ESV_{Teich} = \frac{7.0}{2.4 + LVDs} \cdot LVDs^3$$

$$SV_{Teich} = EDV_{Teich} - ESV_{Teich}$$

$$EF_{Teich} = \frac{EDV_{Teich} - ESV_{Teich}}{EDV_{Teich}} \cdot 100$$

$$CO_{Teich} = \frac{SV_{Teich} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
EDV_{Teich}	End diastolic volume	(ml)
ESV_{Teich}	End systolic volume	(ml)
SV_{Teich}	Stroke volume	(ml)
EF_{Teich}	Ejection fraction	(%)
CO_{Teich}	Cardiac output	(l/min)
HR	Heart Rate[bpm]	(bpm)

Reference: Teichholz L.E., Kreulen T., Hermann M.V., et. al. „Problems in echocardiographic volume Determinations: echocardiographic-angiographic correlations in the presence or absence of asynergy." American Journal of Cardiology, 1976,37:1.

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-2-1-2 LV-Single Plane (Cubed)

$$EDV_{Cubed} = LVDd^{3} \qquad ESV_{Cubed} = LVDs^{3}$$

$$SV_{Cubed} = EDV_{Cubed} - ESV_{Cubed} \qquad EF_{Cubed} = \frac{EDV_{Cubed} - ESV_{Cubed}}{EDV_{Cubed}}$$

$$CO_{Cubed} = \frac{SV_{Cubed} \times HR}{1000}$$

LVDd	Left ventricle diameter, diastole	(cm)
LVDs	Left ventricle diameter, systole	(cm)
EDV_{Cubed}	End diastolic volume	(ml)
ESV_{Cubed}	End systolic volume	(ml)
SV_{Cubed}	Stroke Volume	(ml)
EF_{Cubed}	Ejection fraction	(%)
CO_{Cubed}	Cardiac output	(l/min)
HR	Heart Rate	(bpm)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie", Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. "Checkliste Echokardiographie" Thieme Verlag, 3. Auflage, 2001, page 64

2-2-1-3 Fractional Shortening of Left Ventricle Internal diameter

A percent change in LV cavity dimension with systolic contraction

$$FS = \frac{LVDd - LVDs}{LVDd} \cdot 100$$

LVDd	Left ventricle diameter, diastole	(cm)
LVPDs	Left ventricle diameter, systole	(cm)
IFS	Fractional shortening	(%)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-2-1-4 Left ventricular Mass (LV mass)

$$LV_{Mass} = 1.04 * \left[\left(LVDd + LVPWd + IVSd \right)^3 - LVDd^3 \right] - 13.6$$

LVDd	Left ventricle diameter, diastole	(cm)
LVPWd	Left ventricular posterior wall diameter, diastole	(cm)
IVSd	Intraventricular Septum diameter, diastole	(cm)
LV_{Mass}	Left ventricular mass	(g)

Reference: Devereux,R.B.; Reichek,N, “Echocardiographic determination of left ventricular mass in man. Anatomic validation of the method”, Circulation 1977; 55; 613-618

2-2-2 Artery Valves/Left Atrium (AV/LA)

2-2-2-1 Aortic Root Diameter (unit:cm) : Ao root dia.

AVLA -AO Diam.: The distance between the leading echo of the anterior aortic wall and the leading echo of the posterior aortic wall at the R wave of theelectrocardiogram.

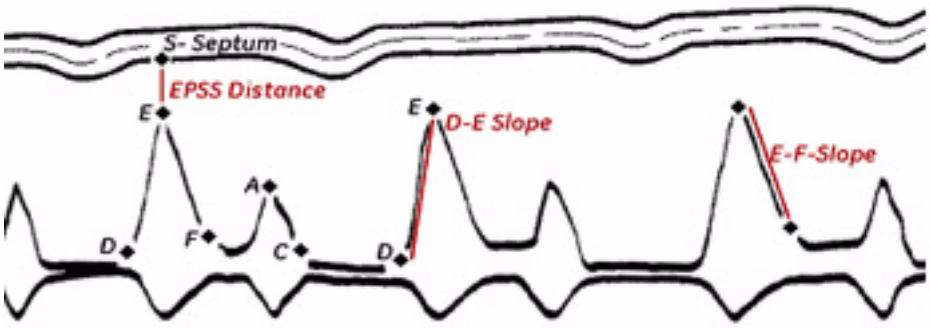
2-2-2-2 Left Atrial Diameter (unit:cm) : LA dia.

AVLA -LA Diam.: The distance between the trailing edge of the posterior aortic wall echo and the leading edge of the posterior left atrial wall echo at the level of the aortic wall at the R wave of the electrocardiogram.

2-2-2-3 Aortic Valve Cusp Separation (unit:cm) : Ao cusp sep.

2-2-3 Mitral Valve (MV)

AVLA-AV Cusp.: The distance between the trailing echo of the anterior aortic valve leaflet and the leading echo of the posterior aortic valve leaflet in early diastole.



Schema of M-Mode: Böhmeke, Th. “Echokardiographie”,Thieme, 2001

A: In atrial systole, blood is propelled through the mitral orifice and the mitral leaflets reopen the peak of this phase of mitral valve motion is indicated as A

C: Complete closure occurs after the onset of the ventricular systole.

D: End of systolic, immediately before the opening of the Mitral Valve.

E: The anterial leaflet of the mitral valve opens, it peaks at E.

F: Lowest point of the initial diastolic closing.

EPSS: E-Point to Septal Separation

2-2-3-1 D-E Slope

MV-DE Slope: Automatic. calculated from the D-E excursion. The rate of change that exists between two point (D, E). (unit:m/s)

MV-DE Ampl.: Distance between the onset of the opening of the mitral valve at D and the maximum opening of the anterior mitral valve leaflet at E. (unit: cm)

2-2-3-2 E-F Slope (unit: m/s)

MV-EF Slope: Indicates the difference between early (E-Point) and mid-diastolic leaflet position (F-Point).

2-2-3-3 A-C time interval (unit : ms)

MV-AC: The time interval between the A point and the C point.

2-2-3-4 EPSS Distance (unit: cm)

MV-EPSS: Distance between the Mitral Valve E point and the posterior edge of the interventricular septum at the same point in time.

Reference: Böhmeke, Th. "Echokardiographie",Thieme, 2001

2-2-4 Heart Rate (HR)

$$HR = \frac{beats}{t} \times 60$$

beats	Number of beats	(n)
t	Time	(sec)
HR	Heart Rate	(bpm)

Section 2-3
Cardiology D-Mode

2-3-1 Mitral Valve(MV) / Tricuspid Valve(TV)

2-3-1-1 Peak A+E

$$MV\ E/A = \frac{V_{Peak,E}}{V_{Peak,A}}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
$V_{Peak,A}$	Peak Velocity at A-Point	(m/s)
MV E/A	Ratio between $V_{Peak,E}$ and $V_{Peak,A}$	

2-3-1-2 Pressure Gradient (Peak PG)

$$PG = 4 \cdot V_{Peak,E}^{2}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PG_{Peak}	Pressure Gradient	(mmHg)

2-3-1-3 Pressure Half Time (PHT)

The peak velocity to fall to the velocity corresponding to one half of the peak pressure.
The time in seconds for the velocity to fall off to 0.707of its peak value.
The PHT provides a valuable index of the severity of mitral stenosis.

$$PHT = \frac{V_{Peak,E}}{\sqrt{2}}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PHT	Pressure half time	(ms)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

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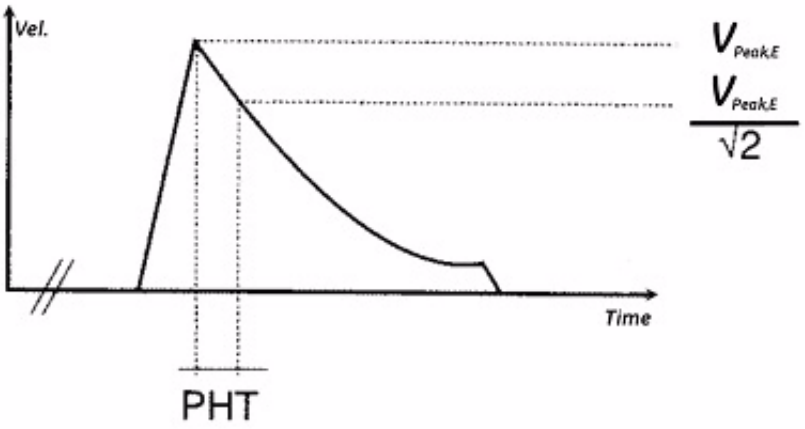


Figure: Fehske, W. “Praxis der konventionellen und farbcodierten Doppler-Echokardiographie”, Verlag Hans Huber, page 129

2-3-1-4 Mitral Valve Area (MVA)

$$MVA = \frac{220}{PHT}$$

PHT Pressure Half Time (ms)

MVA Mitral Valve Area (cm^2)

Reference: John H. Phillips, " Practical Quantitative Doppler Echocardiography", page 47, Chapter 6, CRC press, 1991

2-3-1-5 Velocity Time Integral (VTI)

$$VTI = \sum V_i \cdot \Delta t$$

VTI Velocity Time Integral(m)

2-3-2 Aortic Valve (AV), Pulmonic Valve (PV)

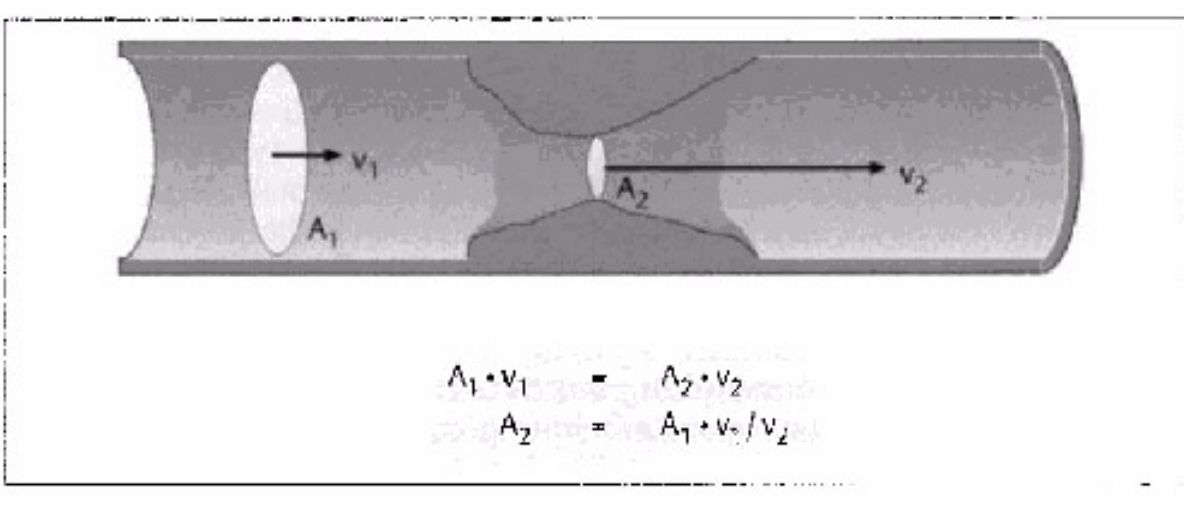
2-3-2-1 Continuity Equation

When there is a constant flow in a flow channel with a stenosis, the flow volume at the stenosis portion equals that at nonstenotic portions.
This equation is valid not only in a constant flow, but also in a pulsatility flow channel.

$$SV1 = SV2$$

SV1 Stroke Volume in the nonstenotic area

SV2 Stroke Volume in the stenotic area



.Continuity Equation

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 17

2-3-2-2 Aortiv Valve Area (AV Area)

$$AV_{Area} = \frac{VTI_{LVOT}}{VTI_{AO}} \cdot LVOT_{Area}$$

VTI_{LVOT} Velocity time integral of the LVOT (cm)

VTI_{AO} Velocity time integral, aortic (cm)

$LVOT_{Area}$ [Left ventricular outflow tract area[(cm^2)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 310- 314.

2-3-2-3 Pulmonary Valve Area (PV Area)

$$PV_{Area} = \frac{VTI_{RVOT}}{VTI_{AO}}$$

VTI_{RVOT}	Velocity time integral of the RVOT	(cm)
VTI_{AO}	Velocity time integral, aortic	(cm)
$RVOT_{Area}$	[Right ventricular outflow tract area	((cm^2)
	[	

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 310- 314.

2-3-2-4 Pressure Gradient (PG)

$$PG = 4 \cdot V_{Peak,E}^{2}$$

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PG	Pressure Gradient	(mmHg)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Thieme, 2002, page 18

2-3-2-5 Mean Pressure Gradient (MnG)

$$MnG = \sum PG_i \cdot \Delta t \qquad PG = 4 \cdot V_{Peak,E}^{2}$$

2-3-3 Left ventricular outflow tract (LVOT)

$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)
PG	Pressure Gradient	(mmHg)
MnG	Mean pressure Gradient[	(mmHg)

2-3-3-1 Stroke Volume (SV)

$$SV = VTI \cdot CSA \qquad CSA = \frac{Dia^2}{4} \cdot \pi$$

CSA	Cross sectional area	(cm^2)
SV	Stroke volume	(ml)
VTI	Velocity Time Integral	(m)
Dia	Diameter	(cm)

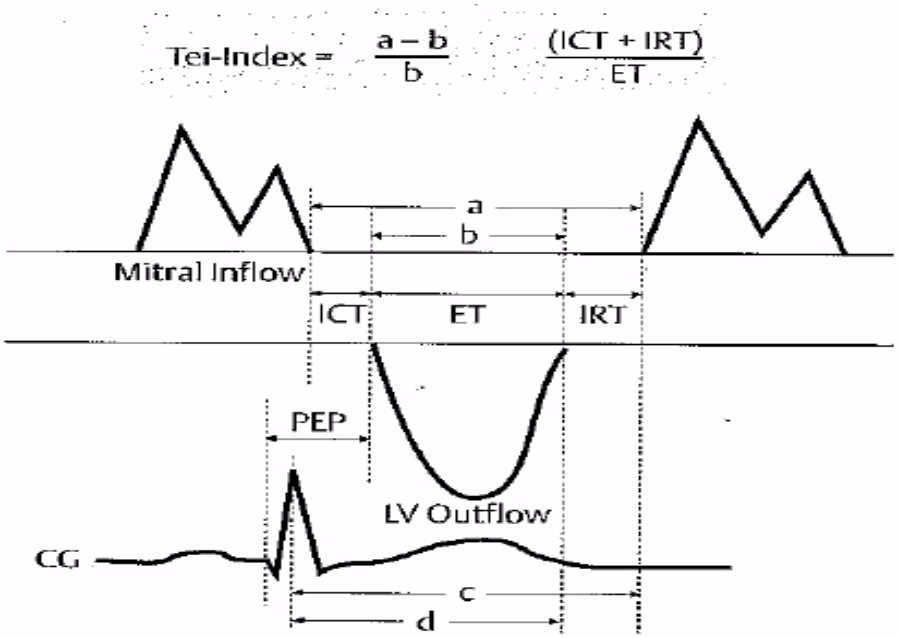
The Cross Sectional Area (CSA) may be determined by the M Mode or 2D echo image study (e.g., the left ventricle outflow track, aortic root, pulmonary artery)

Reference: *Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 178*
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-3-3-2 Tei-Index (ICT,ET,IRT)

Reference: *Flachskampf,F.A., et al. "Praxis der Echokardiografie", pages 164, 165., Thieme Verlag 2002.*

NOTE: TEI - Index (also denoted as Myocardial performance index MPI), reflects both left ventricular (LV) systolic and diastolic function.



2-3-4 Right ventricular outflow tract (RVOT)

2-3-4-1 Stroke Volume (SV)

$$SV = VTI \cdot CSA \qquad CSA = \frac{Dia^2}{4} \cdot \pi$$

CSA	Cross sectional area	(cm^2)
SV	Stroke volume	(ml)
VTI	Velocity Time Integral	(m)
Dia	Diameter	(cm)

The Cross Sectional Area (CSA) may be determined by the M Mode or 2D echo image study (e.g., the left ventricle outflow track, aortic root, pulmonary artery)

Reference: Flachskampf,F.A., „Praxis der Echokardiographie“, Kapitel 9 : Regionale und globale Funktion des linken Ventrikels bei koronarer Herzkrankheit, Thieme, 2002, pages 17
Böhmeke Th. “Checkliste Echokardiographie” Thieme Verlag, 3. Auflage, 2001, page 64

2-3-5 Pulmonary artery pressure (PAP)

$$PAPm = 4 \cdot VPD^2 + 10$$

$$PAPd = 4 \cdot VTD^2 + 10$$

$$PAPs = 3 \cdot PAPm - 2 \cdot PAPd$$

VPD	protodiastolic velocity	(m/s)
VTD	telediastolic velocity	(m/s)
PAP	pulmonary artery pressure	(mmHG)
PAPm	mean pulmonary artery pressure	(mmHG)
PAPd	mean pulmonary artery pressure	(mmHG)
PAPs	peak systolic pulmonary artery pressure	(mmHG)

Reference: Masuyama T., Kodama K., Kitabatake A., Sato H., Nanto S., Inoue M. "Continuous-Wave Doppler Echocardiographic Detection of Pulmonay Regurgitation and its Application to Noninvasive Estimation of Pulmonary Artery Pressure", Circulation 1986; Vol. 74, No. 3:484-492

Reference: Reference:Hatle L., Anglesen B: "Doppler Ultrasound in Cardiology", Philadelphia, Lea & Febiger 1985

2-3-6 Heart Rate (HR)

$$HR = \frac{beats}{t} \cdot 60$$

beats	number of beats	(n)
t	time	(s)
HR	Heart Rate	(bpm)

Section 2-4
Cardiology C-Mode

2-4-1 Cardiology C-Mode

2-4-1-1 Proximal Isovelocity Surface Area (PISA)

$$PISA = 2 \times \pi \times PISA_{Radius^2}$$

PISA	Proximal Isovelocity Surface Area	(cm^2)
$PISA_{Radius}$	Radial distance of the isovelocity	(cm)

2-4-1-2 PISA Radius

PISA-Radius is the radial distance of the PISA orifice.

Reference: Oh, J.K., Seward, J.B., Tajik, A.J. The Echo Manual. Boston: Little, Brownand Company, 1994, S.106.

Reference: Schmailzl K., Omerod O., Hrsg. „Ultrasound in Cardiology". Blackwell Science, 1994, page 125.

2-4-1-3 PISA-Alias Velocity

PISA-Alias velocity is the alias velocity measured with color doppler

Reference: Schmailzl K., Omerod O., Hrsg. „Ultrasound in Cardiology". Blackwell Science, 1994, page 125.

2-4-1-4 Regurgitant Volume Flow Rate (Rate)

Flow per seconds

$$Rate = PISA \cdot Vel_{Alias}$$

Rate	Regurgitation flow per seconds	(ml/s)
PISA	Proximal Isovelocity Surface Area	(cm^2)
Vel_{Alias}	PISA-Alias Velocity from CFM	(cm/s)

Reference: Oh J.B., Seward J.B., Tajik A.J. "The Echo Manual". Boston: Little, Brown and Company,1994, page 106

2-4-1-5 Effective Regurgitant Orifice (ERO)

$$ERO = \frac{Rate}{V_{Peak,E}}$$

ERO	Effective Regurgitant Orifice	((cm²)
Rate	Regurgitation flow per seconds	(ml/s)
$V_{Peak,E}$	Peak Velocity at E-Point	(m/s)

Reference: Oh J.B., Seward J.B., Tajik A.J. "The Echo Manual". Boston: Little, Brown and Company,1994, page 108-109.

2-4-1-6 Regurgitant Volume by PISA (Vol)

$$Vol = ERO \cdot VTI$$

Vol	Regurgitant Volume by PISA	(ml)
VTI	Velocity Time Integral	(m)
ERO	Effective Regurgitant Orifice	(cm²)

Reference: Oh J.B., Seward J.B., Tajik A.J. "The Echo Manual". Boston: Little, Brown and Company,1994, page 108-109.

Chapter 3
Vascular References

Section 3-1
Vascular References and Formulas

3-1-1 Resistance Index

$$RI = \frac{PSV - EDV}{PSV}$$

PSV	Peak Systolic Velocity	(cm/s)
EDV	End Diastolic Velocity	(cm/s)
RI	Resistance Index	(--)

Reference: Burns Peter N., "The Physical principles of Doppler Spectral Analysis," Journal of Clinical Ultrasound, Nov./Dec. 1987, Vol.15, No.9,p.586

3-1-2 Pulsatility Index

$$PI = \frac{PSV - EDV}{MnV}$$

PSV	Peak Systolic Velocity	(cm/s)
EDV	End Diastolic Velocity	(cm/s)
MnV	Mean Velocity	(cm/s)
PI	Pulsatility Index	(--)

Reference: Burns Peter N., "The Physical principles of Doppler Spectral Analysis," Journal of Clinical Ultrasound, Nov./Dec. 1987, Vol.15, No.9,p.586

3-1-2-1 Pulsatility Index (Ductus Venosus)

$$PI = \frac{PSV - MDV}{MnV}$$

PSV	Peak Systolic Velocity	(cm/s)
MDV	Mid Diastolic Velocity	(cm/s)
MnV	Mean Velocity	(cm/s)
PI	Pulsatility Index	(--)

Reference: Baschat,A.A., "Relationship between placental blood flow resistance and precordial venous Doppler indices", Ultrasound Obstet Gynecol. Vol. 22 No. 6, 2003, pages 561-566.

3-1-3 Systolic/Diastolic Ratio (S/D)

$$S\backslash D = \frac{PSV}{EDV}$$

PSV	Peak Systolic Velocity	(cm/s)
EDV	End Diastolic Velocity	(cm/s)
S/D	Systolic/Diastolic Ratio	(--)

Reference: Ameriso S, et al., "Pulseless Transcranial Doppler Finding in Takayasu's Arteritis,"

3-1-4 Pressure Gradient (PG)

$$PG = 4 \times V_{max^2}$$

Vmax	Peak Velocity, Velocity E	(m/s)
PG	Pressure Gradient	(mmHg)

Reference: F. A. Flachskampf; Praxis der Echokardiographie; Thieme Verlag, 2002; S. 18f

3-1-5 Area Reduction (% StA)

The system calculates the percent of area/distance reduction.

$$\%StA = \left(1 - \frac{Ar}{Ao}\right) \cdot 100$$

Ao	Original area of the vessel	(cm^2)
Ar	Reduced area of the vessel	(cm^2)
%StA	Percent of the area reduction	(%)

Reference: Jacob, Normaan M et, al., " Duplex Carotid Sonography : Crieteria for Stenosis, Accuracy and Pitfalls," Radiology 154: 385~391, 1985.

3-1-6 Distance Reduction (% StD)

The system calculates the percent of area/distance reduction.

$$\%StD = \left(1 - \frac{Din}{Dout}\right) \cdot 100$$

Dout	Outer (original) distance	(cm)
Din	Inner (reduced) distance	(cm)
%StD	Percent of the distance reduction	(%)

Reference: Jacob, Normaan M et, al., " Duplex Carotid Sonography : Crieteria for Stenosis, Accuracy and Pitfalls," Radiology 154: 385~391, 1985.

3-1-7 Velocity Time Integral (VTI)

$$VTI = \int \bar{v} * dt$$

VTI Velocity Time Integral(cm)

3-1-8 Stroke Volume (SV)

$$SV = VTI \times CSA \qquad CSA = \frac{Dia^2}{4} \times \pi$$

CSA Cross Sectional Area (cm^2)
SV Stroke Volume (ml)

The Cross Sectional Area (CSA) may be determined by the 2D echo image study.

Chapter 4
Gynecology References

Section 4-1
Gynecology References and Calculation

4-1-1 Residual Urine (ResUr)

Reference: Haylen, B.T., Residual urine volumes in a normal female population: application of transvaginal ultrasound. British Journal of Urology, 1989. 64(4): p. 347-349.

Calculations:

+ Residual Urine = x*y*5.9 – 14.9 ml (x = Bladder height, y = Bladder width) (10) - ResUr

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GE Healthcare Austria GmbH & Co OG
Tiefenbach 15
A-4871 Zipf
Austria

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